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by Jon Finn



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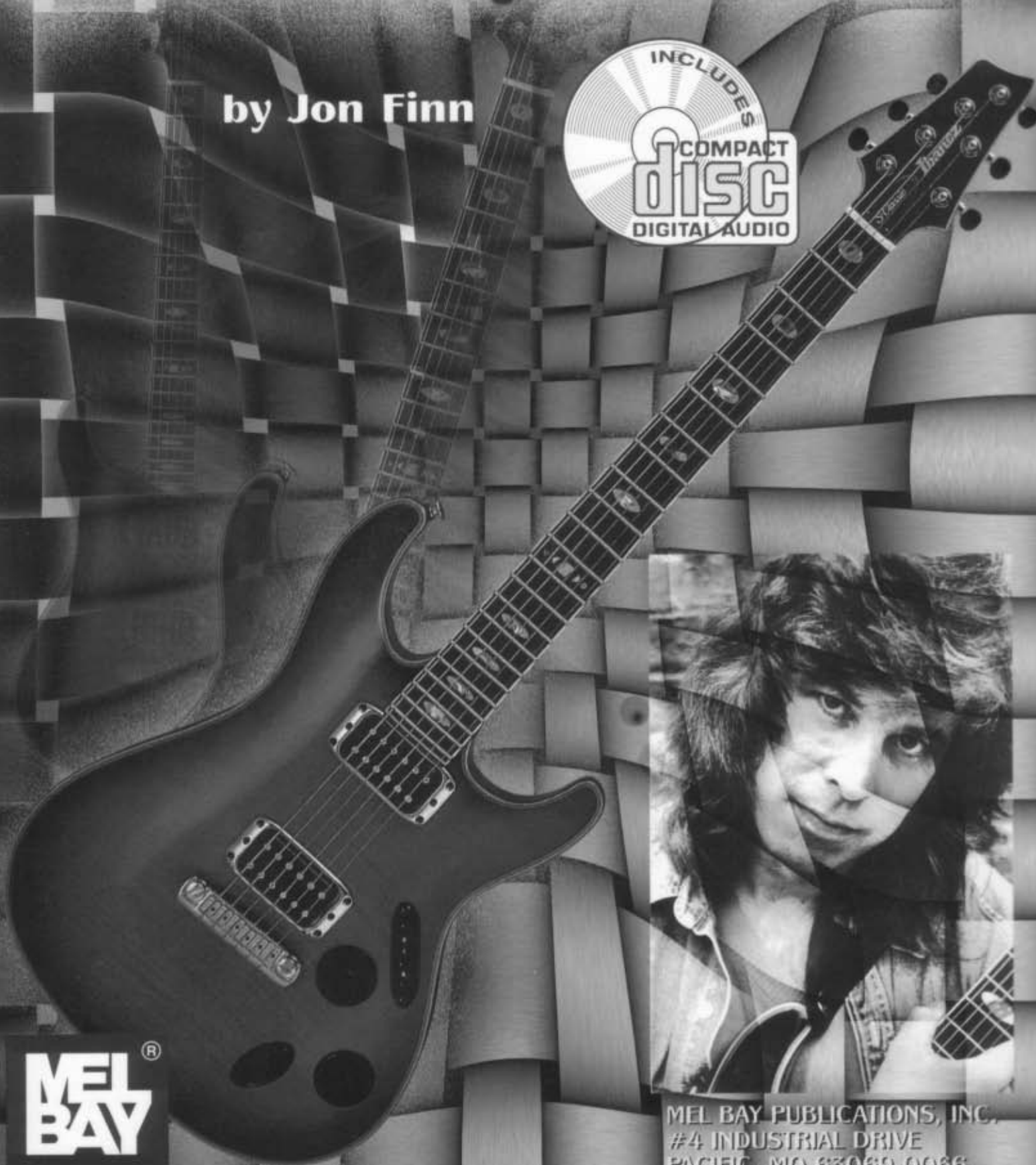
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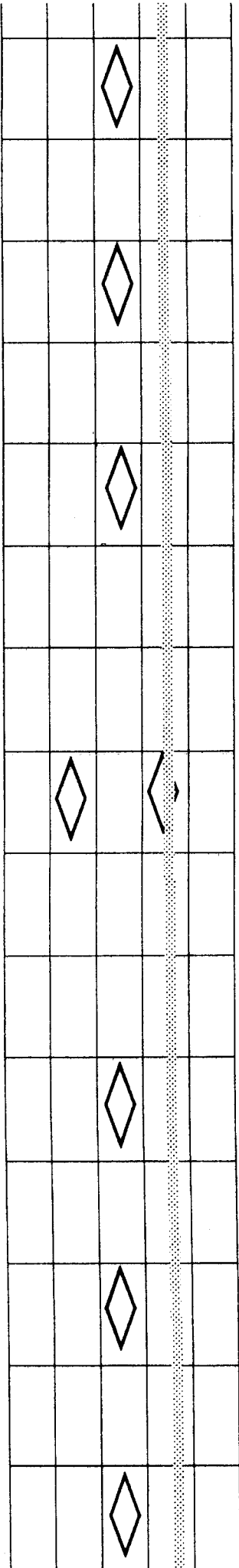
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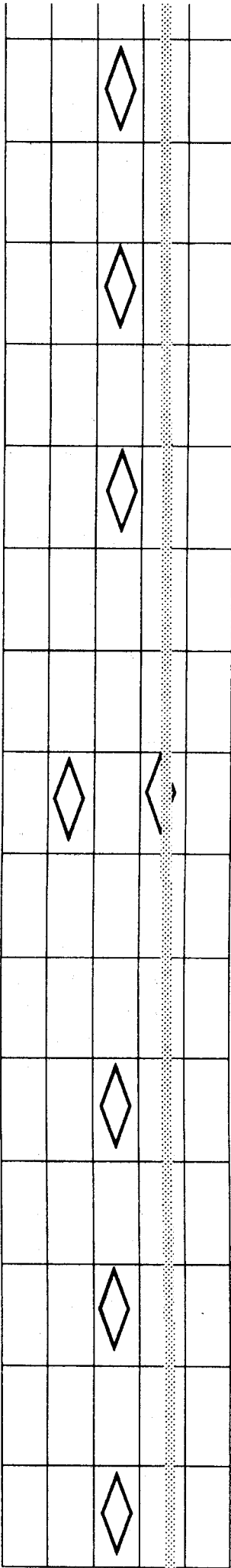
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CHAPTER I:

INTRODUCTION—How to use this book



Introduction

I started playing guitar at age six. I learned how to play by ear, and by people showing me things. I was taught for a few years (from age 7 to age 9) by an enthusiastic and patient woman named Mrs. Haywood. She taught me songs out of a book written by Pete Seeger. Instead of insisting that I learned the notes, she would leave the book open and show me what I needed to know. At such a tender age, my attention span was short. Frequently, I would stop playing and talk about rocket ships, or baseball, or model airplanes, or whatever it was I happened to be thinking about. Every time I did that she would listen intently with a big smile on her face. She would simply enjoy with me whatever I was enjoying at that moment even if it had nothing to do with guitar. Funny thing was, we were back playing within minutes. We would sing songs, play guitar, learn a few new things along the way. We laughed a lot too. Without fail, I left smiling like a cheshire cat. My 3:15 Tuesday afternoon lesson was something I looked forward to.

One day she called and told me not to come anymore because she felt I had outgrown her abilities as a teacher. More than 30 years later, I am realizing that the most important things I've ever learned about music came from her. Music is fun.

Later on, I came in contact with a music teacher named Paul Monaghan. Mr. Monaghan displayed an obvious love for music. His talent was undeniable. He could make a room full of "I know more than you" teenagers laugh at the silliest jokes, or hang their heads in shame if their performance wasn't up to his standards. He was particularly hard on me. If I hit a wrong note, I could feel his eyes burn holes in my chest. I would go to him with a question about something after school, and I would find myself discussing the same topic in his kitchen many hours later, with his musician sons contributing ideas here and there. I asked him one day why it was that one day he'd yell at me, and another I'd be at his house telling jokes with his family. I told him I was confused because I thought we were friends. He got wide-eyed with me again. "Let me be clear Mr. Finn. I am not your friend. I am your teacher. I am nice to you because I like you. I am hard on you because you have more talent than the others. When I expect that much from you, I get it. I am convinced you will someday do something important with your talent. I believe in you. But don't mistake that for friendship." I hope I haven't let him down.

Mark French and Bill Leavitt were the two teachers I spent the most time studying with as a student at Berklee College of Music. Their teaching styles were wildly different. Mark had a funny way of sitting there and doing almost nothing while I did all the work. I often wondered why I even needed him. I would go in to his room and play, he would speak two sentences that would keep me working for another week. He would sometimes ask questions that would force me to "teach" him what I was working on. Somehow, he always managed to get me to a place where I knew exactly what it was I needed to do. It took me long time to understand his understated, but very deep and wise ways.

Bill Leavitt was a different animal altogether. He was boisterous, enthusiastic and opinionated. During my first lesson, he chided me for spending thousands of dollars on an amp "that deliberately screwed up the sound of a guitar" (he was talking about amp distortion). When I explained to him what distortion was all about, he acknowledged that we came from entirely different eras and that it was unreasonable for me to expect him to appreciate the things I like simply because I like them. He accepted me on my own terms, but expected me to do the same. Lessons with him were like diving headfirst in to the sun. His brilliance was almost too much to handle. Bill was the one who finally taught me that the more you learn, the more you realize how much further you have to go. Bill Leavitt spent his last days in the hospital scribbling music on a notepad for another book he was working on. This after a teaching and performing career that spanned more than fifty years.

Some people come in to your life and make a difference.

How to Use this Book

If you take a chair and turn it upside down, it's still a chair. But now it looks different. If you turn it sideways, it's still a chair. Even if you've never experienced a sideways chair before, identifying the object presents little problem. Chairs come in many shapes and sizes. But we can still identify their "chair-ness." Consider this troubling paradox: Most chairs have backs, four legs and a seat. Most dogs have backs, four legs and a seat. Some chairs have fur. You can sit on some dogs. But we as humans rarely struggle with the difference between chairs and dogs.

Why is this so?

Humans are naturally curious beings. We want to understand things from every angle we can find. We do it so naturally and unconsciously that we don't think about it. It just happens. Even if we've never actually seen a chair upside down, we've "turned them over" in our heads a million times. That's what this book is meant to do; to take some familiar ideas and turn them over until your understanding of it deepens a thousandfold.

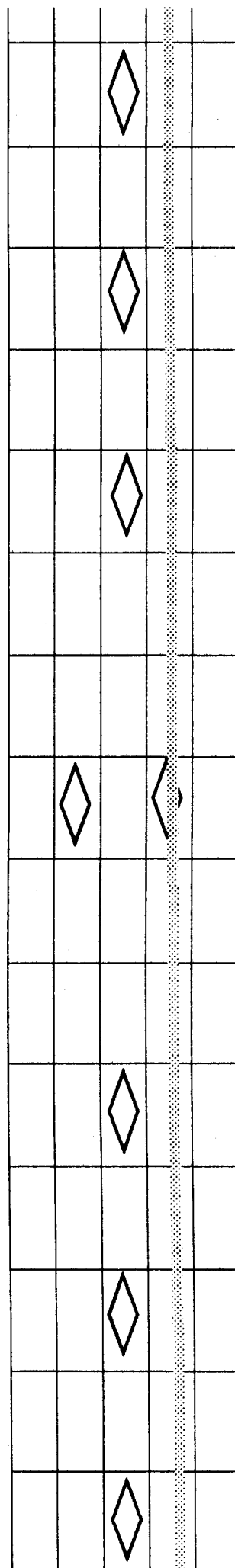
If you're flipping through this book and thinking to yourself that you already know all the information presented here, then you are exactly the person this book is written for. If you don't know any of this stuff, it's written for you too. In both cases, prepare to work through this book in a cyclical manner. Read all the chapters. Play and learn all the examples. Review an earlier chapter after you've thought about a later one. Review a later chapter after you've thought about an earlier chapter. Read the book now, then read it again ten years from now. Every time you do, the material will mean something different. Don't be discouraged if you don't feel the full impact the first or even second time you work with this book.

How do you know if you've felt the full impact? The same way you know if you've been cracked upside the head with a baseball bat. You'll just know.

CHAPTER 2:

THE WARP REFRACTION PRINCIPLE—

The guitar's "Laws of Physics"



The Warp Refraction Principle - The Guitar's "Laws of Physics"

I'm going to make way too much out of what is really a very simple idea: The fact that the guitar is tuned in 4ths except for the 3rd and 2nd strings (which are tuned a major 3rd apart). I've taught this lesson thousands of times. When I start talking about it, the reactions are pretty consistent. First, my students will giggle at all the silly terminology used. Next, they'll act impatient after a while because they feel like I'm teaching something they already know and I'm spending too much time on it. Finally, they think for a moment and become wide-eyed at the possibilities that emerge from the perspective.

When I came across these ideas and embraced them, it was as if a cloud of confusion had been lifted. My ability to play improved in a manner that was dramatic. The most ironic part was that while I began improving at a much faster rate, I began to understand how little I really knew, and how much further I needed to go.

Before we continue, you may be asking yourself these questions:

Q: "Am I good enough to take this on?"

A: It is never a question of good enough. Yes. You are.

Q: "Will I ever feel like I am good enough?"

A: No. The better you get, the more you become aware of your shortcomings. Eventually, you learn to become comfortable with the idea. You see yourself on a journey and enjoy the ride.

Q: "I'm afraid of being too 'influenced' by someone else's ideas."

A: No one is ever totally original. Nothing exists in a vacuum. Whether conscious or unconscious, we are all influenced by our surroundings. To deny that fact is to close your eyes to reality.

Q: "Won't this understanding ruin my creativity?"

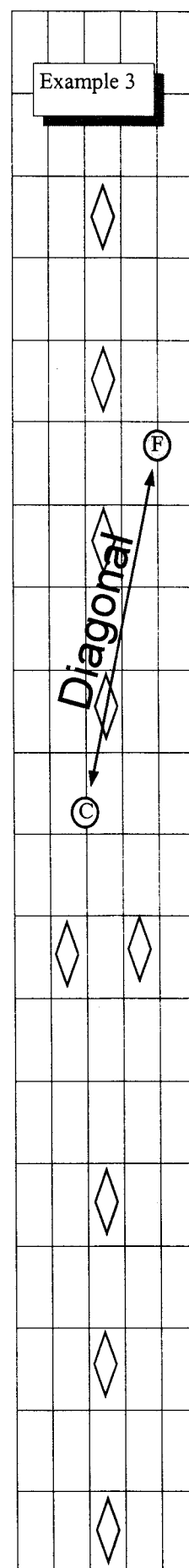
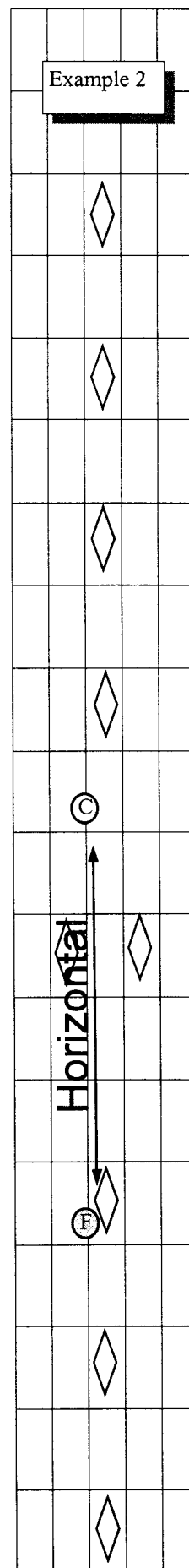
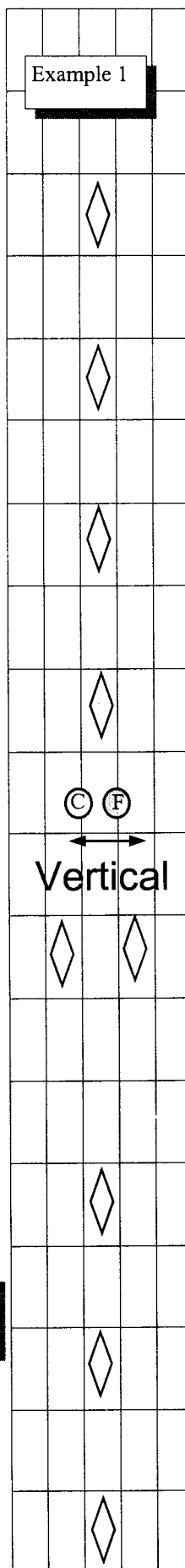
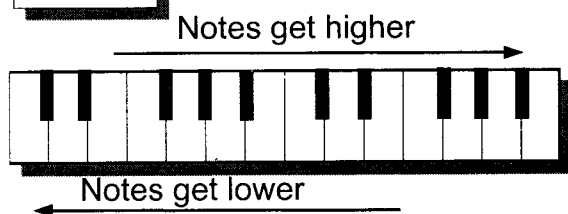
A: No. If you have creative abilities, you don't lose them by increasing your knowledge base. It is true that thinking a certain way can block the creative flow. The creative process has a certain magical element that is unexplainable. Knowing more doesn't remove the magic. If anything, understanding more helps you appreciate the magic on a deeper level.

A Two Dimensional World Revealed

The guitar by its nature is two dimensional. To see what I mean, try this exercise: place your first finger on the note C on the 10th fret of your 4th (D) string. To play the note F a perfect 4th higher, you have several options. You can move up vertically up to the 3rd string at the same fret (example 1), across horizontally up the neck to the 15th fret on the same string (example 2), or you can move diagonally (which is really moving horizontally and vertically at the same time) to the 2nd (B) string at the 6th fret (example 3). There are still other ways to play the same two notes. The beauty of the guitar is that even though the notes are the same, each will produce a different sound. To truly understand how the guitar behaves, the "Two Dimensions" issue has to be addressed.

The piano by contrast, only allows physical movement to the left (lower notes) and right (higher notes). The keyboardist only has one possible way to play the above mentioned notes. See example 4.

Example 4



It was always troubling to me that I could figure out the piano fairly quickly; even though I never studied it seriously. Knowing these little tidbits of info helped me understand why. Locating notes on a guitar is just plain more complex. Studying guitar seriously only drives that point home further.

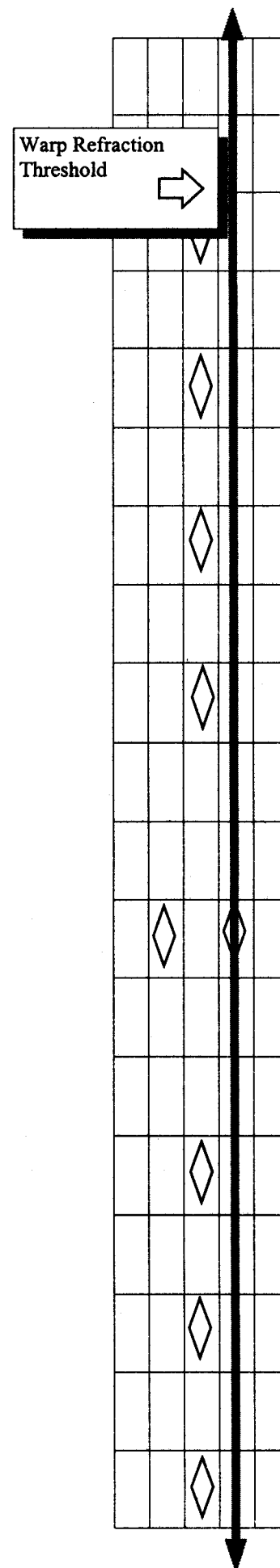
It gets worse.

After playing for about 12 years, I began to get very frustrated at the idea that no matter how much I practiced, there were always certain things that would “trip me up.” For example, any fingering, whether it was a chord, scale, arpeggio... anything that involved crossing from the G to B strings tended to cause mild, momentary confusion. It was just enough to cause me to make more mistakes than I thought was appropriate. Further, I noticed that many students make these same unconscious mistakes. The way the problem is often solved is through repetition. Doing that makes the mistakes disappear, but it sure doesn’t make any of us feel smart knowing we have to repeat the same thing over and over.

Here is the conclusion I came to: Memorizing things by rote will give us the ability to play whatever we want, but it won’t help us understand it better. What we need is a way to think about the guitar that helps it make more logical sense.

The Warp Refraction Principle

The guitar’s fretboard is divided into two separate, but equal, “universes.” They both share the same laws of “physics.” The lower “universe” is located on strings 6, 5, 4, & 3. The upper “universe” is strings 2&1. These “universes” are separated by an anomaly (play the Star Trek Theme here) known as “The Warp Refraction Threshold,” which is located between the 3rd and 2nd strings. Crossing from one “universe” into the other causes the “optical illusion” that fingerings are offset by one fret.

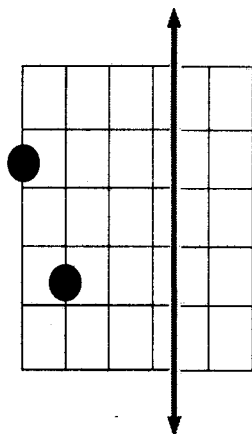


No. This isn't a joke. It might sound like one, but it's serious business. Any scientific theory such as this screams to be proven.

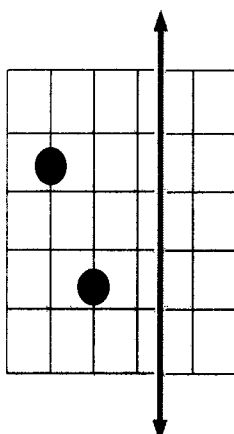
Remember when you took Science in fifth grade and the teacher held a pencil behind a clear glass filled with water? She called it "Refraction." Common sense tells us the pencil did not break. Rather, the appearance is an optical illusion. This "Warp Refraction" idea allows us to think of the adjustments we have to make in order to accommodate the major 3rd tuning between the G and B strings as an "Optical Illusion."

Let's explore that concept further. Let's start with "power chords" (or the interval of a perfect fifth) and play it on each set of two strings. Though the notes and range will change, the inherent sound and the relationship between the notes will not. Please look at the following examples: The grey arrow in each diagram shows the Warp Refraction Threshold.

Play only strings 6&5

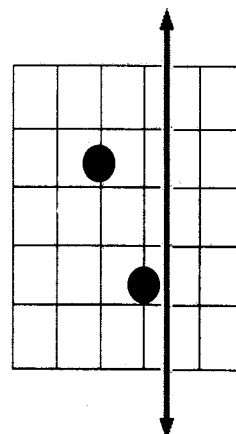


Play only strings 5&4

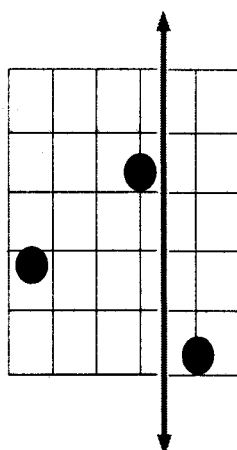


Play only strings 4&3.

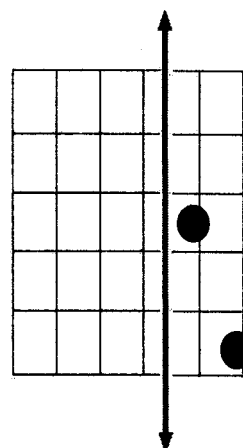
Since all of these identical fingerings so far have all been played in the "same universe" they will each make the same sound.



Play only strings 3&2. Now, one note has crossed over the Warp Refraction Threshold. To maintain the same note relationship (perfect fifth), the higher note "appears" to be fretted a fret higher than "normal." This is an "optical Illusion."



Play only strings 2&1. Now that both notes are played in one "universe", the fingering goes back to "normal." Note that both notes are now played a fret higher than when you began.



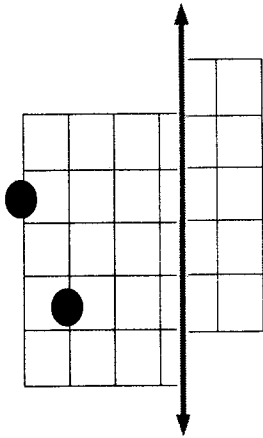
Still think it's a weird idea? Let's keep going with it. Humor me. Think of the examples on the last page as having "passed a pencil behind a clear glass." We watched the "pencil appear to break" but understood that it was just an "optical illusion."

Or do we really get that? What would happen if we took the "clear glass" away from the picture?

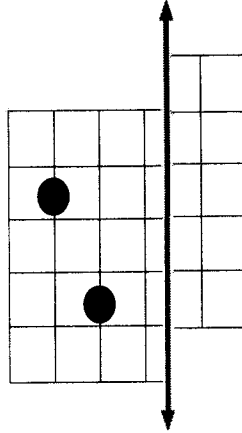
The following diagrams "adjust" the fretboard so that the "optical illusion" is compensated for. It's as if we're wearing glasses that "move" part of the fretboard so that it all lines up neatly.

These examples are identical to the previous five, only the fretboard diagrams "compensate" for the Warp Refraction Threshold. I don't know about you, but to me it's much easier to visualize this way.

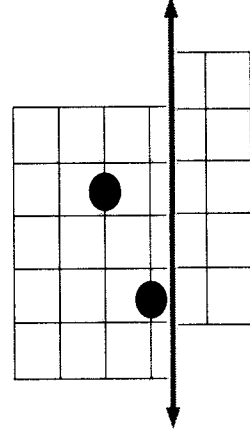
Play only strings 6&5



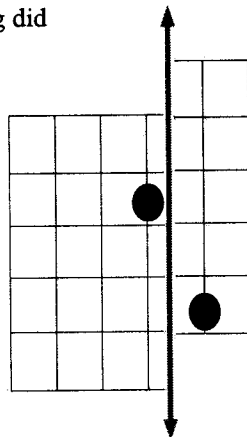
Play only strings 5&4



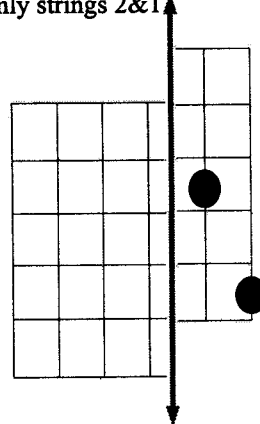
Play only strings 4&3



Play only strings 3&2.
Note the fingering did
not change.

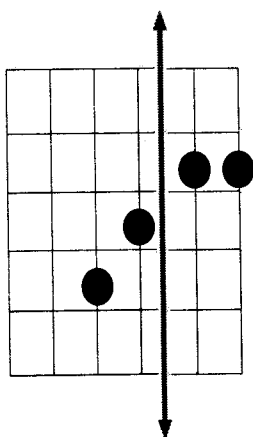
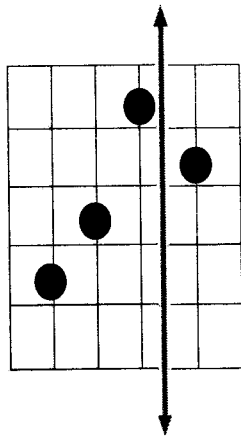
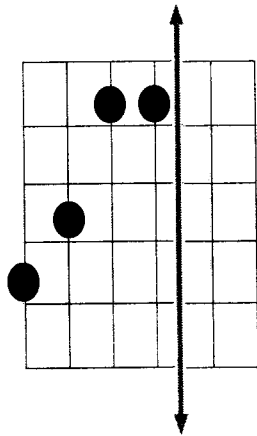


Play only strings 2&1

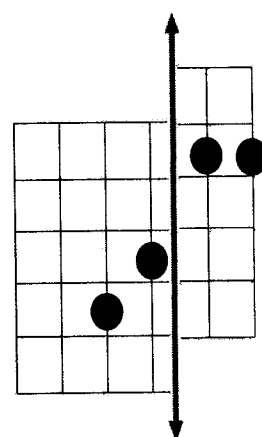
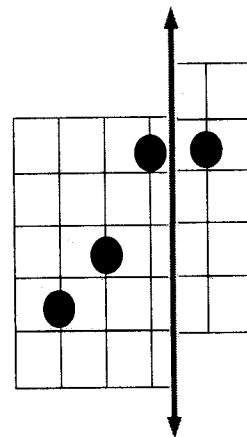
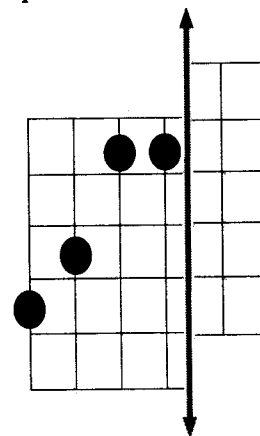


Here are a few more fingerings to work through in the same manner. This idea becomes very unsettling when you realize that chord fingerings that you never associated as being similar turn out to be identical! Have a look. The fingerings on the left are shown as they appear on the fretboard. The ones on the right are “compensated.” Play only the strings that have dots on them.

Here is what the fingerings will look like on the fretboard

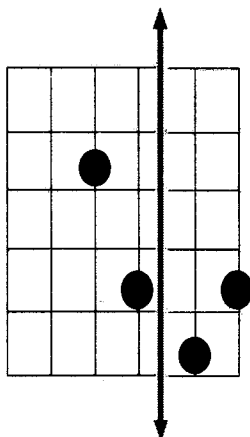
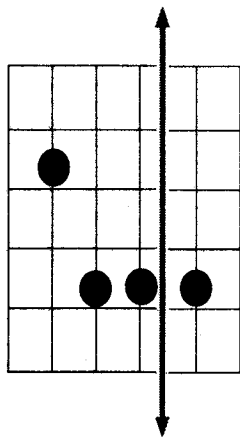
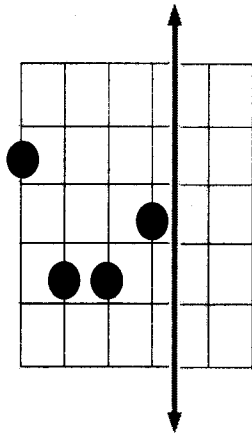


Here is what the same set of fingerings look like when we “compensate for the Warp Refraction Threshold”

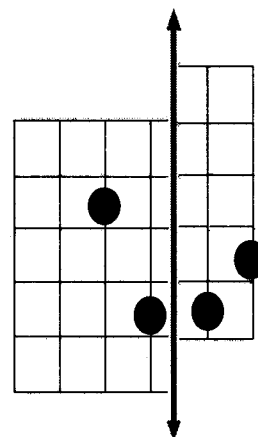
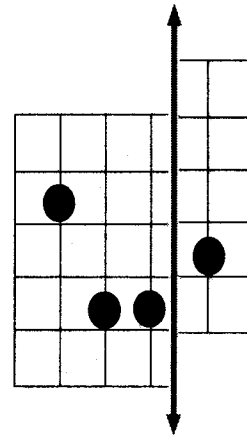
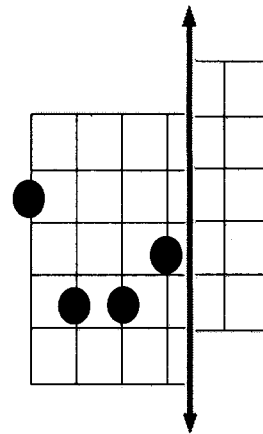


Here are some more. Note that the position is not indicated on any of these fingerings. The reason is that position is irrelevant. This idea works everywhere on the instrument.

Here is what the fingerings will look like on the fretboard



Here is what the same set of fingerings look like when we “compensate for the Warp Refraction Threshold”



One of the primary reasons I've worked through this idea so completely is so that you understand two things:

1. That if you look deep in to any point of view, you frequently find an unexpected level of clarity. Think about how little we'd know about the chair we talked about in the introduction if we weren't able to "turn it over" in our heads.
2. Many of the concepts presented in this book are based off of this principle. If you understand this idea readily, it won't block you when we go in to deeper issues.

I would highly recommend that at some point, you work through this "Warp Refraction Principle" concept as completely as you can. Apply it to as many things as you can think of.

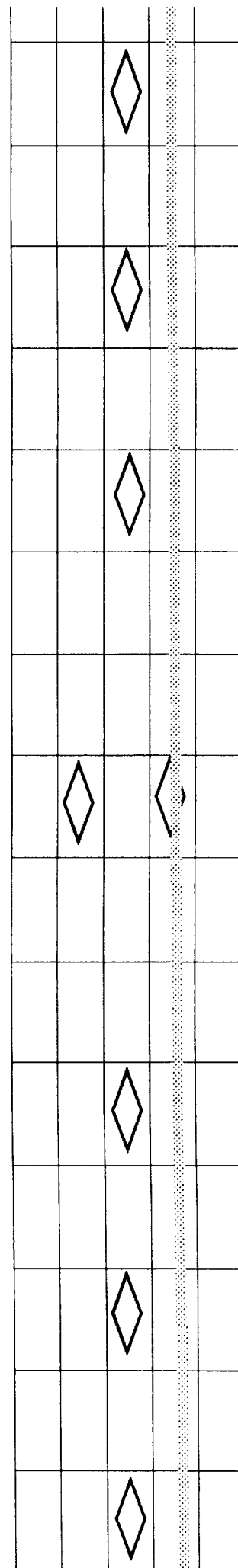
Tell Captain Kirk (or Picard, if you prefer) I sent you.

Chapter 2 Review

- Most traditional methods rely on the player learning where all the notes are. Most guitarists think more in "shapes" rather than "notes."
- The guitar is organized in half-steps (up and down the neck) and 4ths (moving from one string to the next at the same fret). This logic is obscured by the fact that the G and B strings are tuned in 3rds, while the rest are tuned in 4ths.
- This tuning discrepancy causes much more confusion than most people realize.
- Learning the Warp Refraction Principle helps compensate for this point of confusion.

CHAPTER 3:

FRETBOARD GEOMETRY— A new look at pentatonics



Fretboard Geometry

The guitar is an easy instrument to learn, but difficult to master. To make matters worse, most theory concepts are taught without taking guitar fingerings (and their complexities) into account. This makes traditional music theory concepts “user hostile” to those of us who use strings and frets. We end up getting so caught up in fingerings that “The Big Picture” gets mighty fuzzy.

As a result, many players associate sounds with “shapes” on the guitar. The advantage is accessibility. If you find the shape, you can make the sound. The same shape also works in all keys. The disadvantage is that using shapes forces you to use a visual reference to make a sound; sort of like smelling your way home from a gig. Mastering the guitar means that you know the instrument so well that your fingers don’t hesitate on the way to finding the sound you hear in your head. I’ve never met anyone who has completely mastered the guitar.

Many guitarists experience “The Brick Wall.” After years of steady progress (with or without the help of a teacher), we reach a point that stops us cold. Nothing seems to help. I’ve heard it described as being “stuck in a box.” I hit “The Brick Wall” pretty hard.

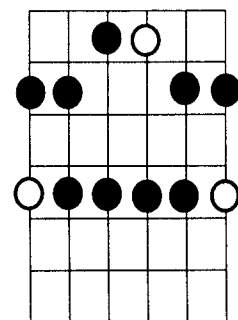
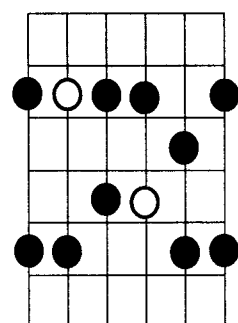
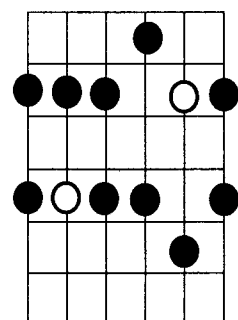
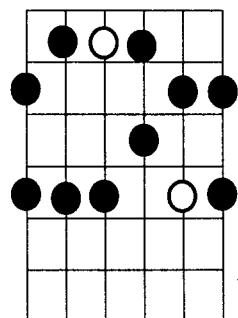
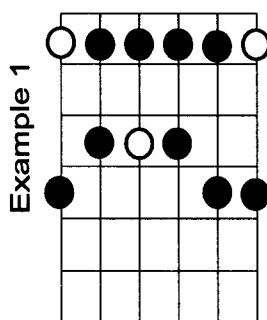
Pentatonics are used all over rock. Knowing it inside out has obvious advantages.

Here we go.

This is the traditional method of laying out pentatonics. In short, you learn five fingerings (given here Ex. 1) and eventually learn to link them all and think of it as one piece of information; as in Example 2.

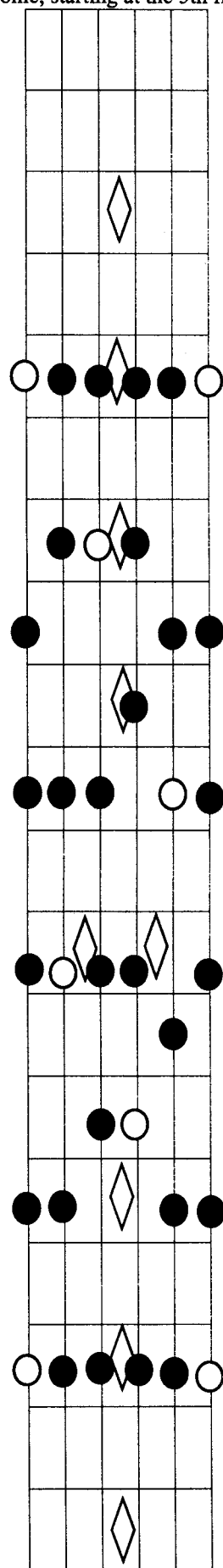
When I play, I prefer not to think. This approach forced me to memorize rather than understand. I also noticed that none of my favorite players ever seem to use this approach literally. More often than not, their fingers seem able to explore every corner of the instrument seamlessly and effortlessly.

Five Pentatonic Scales



All the notes in A minor Pentatonic, starting at the 5th fret

Example 2



The Five Geometric Shapes

There are five basic shapes that connect all over the fretboard. Two Boxes (same shape, different notes), a Rectangle, a Forward Trapezoid and a Reverse Trapezoid. Each shape represents a group of four notes on two strings from the pentatonic scale. As you will see, these shapes can be connected horizontally (moving up and down the fretboard on the same pair of strings), Vertically (moving from one pair of strings to another) and diagonally (moving up or down string pairs and across the fretboard at the same time). Once you “get it,” it’s really easy to memorize. This approach helps me solve the “Not Thinking While Playing” dilemma.

Shown here are the five basic shapes (and the abbreviations that will be used for the rest of the article). Also shown are these shapes as they appear on the 2nd (B) and 1st (E) strings. Be sure to memorize these shapes.

For this chapter, all examples are shown as A minor pentatonic. The white circles in each diagram show the root (or “home tone”) of the minor pentatonic scale. In the case of these examples, it shows where the note “A” is. Be sure to work on transposing this to other keys as well.

Ex. G1: The Five Shapes

Box H



Rectangle



Box L



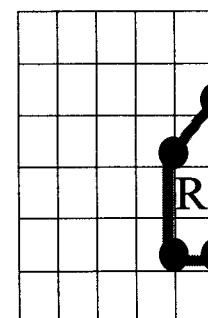
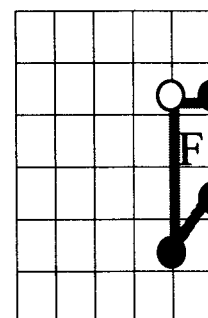
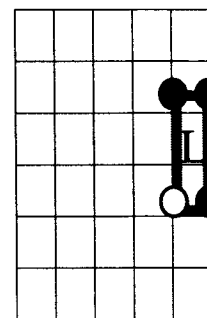
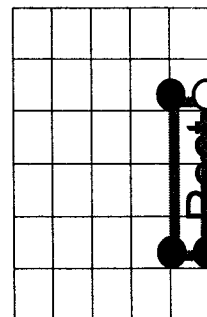
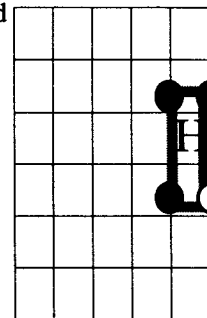
Forward Trapezoid



Reverse Trapezoid



Ex. G2: The Five Shapes on the Fretboard



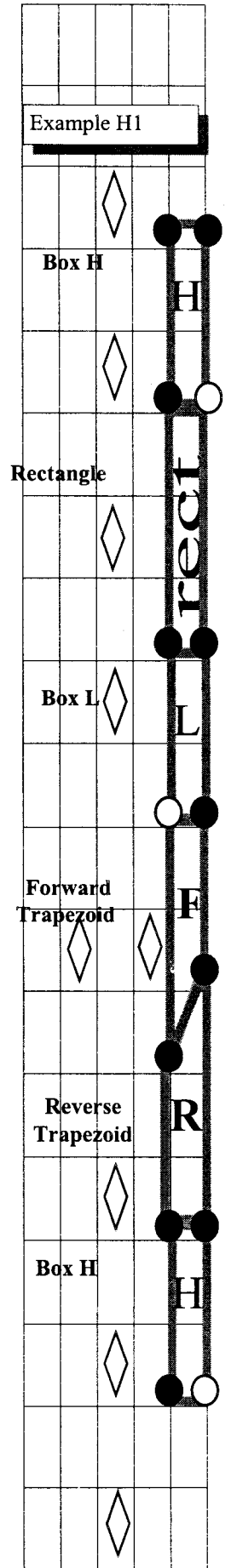
Horizontal

Example H1 shows how the five shapes connect to create a pentatonic scale across the top two strings (2&1). Notice that the shapes overlap. Each successive shape is a continuation of the previous one.

Example H1

* CD Track 4

The musical notation for Example H1 consists of two staves. The first staff shows a pentatonic scale ascending and then descending, starting on the 2nd string (open) and ending on the 1st string (open). The notation includes a treble clef, a key signature of one flat (B-flat), and a 4/4 time signature. The scale is played on the 2nd and 1st strings. The notation includes a treble clef, a key signature of one flat (B-flat), and a 4/4 time signature. The scale is played on the 2nd and 1st strings. The notation includes a treble clef, a key signature of one flat (B-flat), and a 4/4 time signature. The scale is played on the 2nd and 1st strings.



Here is where it starts to get fun. Example H2 shows the same set of shapes in the same order, but on a different pair of strings (5&4), and two frets higher up the neck. Ex. H1 and H2 are essentially the same (H2 sounds an octave lower). If you play these shapes in the same order on any pair of strings (including the 3&2 pair; more on that later), you get the same sound!

Example H2

* CD Track 5

These two examples show the shapes starting and ending on BOX H (indicated in the diagram as “H”). BOX H further up the neck is simply one octave higher than the lowest sounding one. That means that these shapes (as well as a lot of other stuff) are circular in nature. You can start these on any shape (and in any key), and they will always follow the same order.

This chart represents what we’ve covered so far.

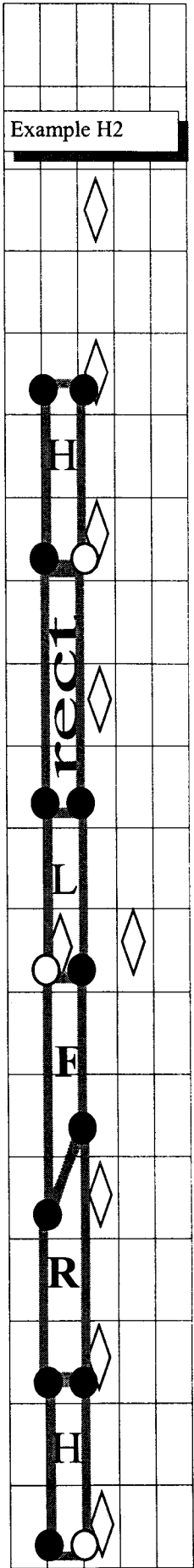
Up and down the neck

String Pairs:

6&5	5&4 Ex. H2:	4&3	3&2	2&1 Ex. H1:
				H
	H			rect
	rect			L
	L			F
	F			R
	R			H
	H			

Across the strings

Each column represents a pair of strings. Each column has one string in common with its neighbors on each side. The rows move you up the neck positions. The position shift (whether two frets or three) depends on which shape you’re headed for. As you read on, this chart will become more and more meaningful.



The Warp Refraction Principle

Some of you might be thinking, "You know, strings 3&2 are tuned a major 3rd apart and the rest are tuned in 4ths. When you get to those two strings, all this stuff breaks down..."

Actually, it still works. It just takes a small adjustment in thought process to make it work.

Here is the "law" of the Warp Refraction Principle reprinted so you don't have to look back:

The guitar's fretboard is divided into two separate, but equal, "universes." They both share the same laws of "physics." The lower "universe" is located on strings 6, 5, 4, & 3. The upper "universe" is strings 2&1. These "universes" are separated by an anomaly (play the Star Trek Theme here) known as "The Warp Refraction Threshold," which is located between the 3rd and 2nd strings. Crossing from one "universe" into the other causes the "optical illusion" that fingerings are offset by one fret.

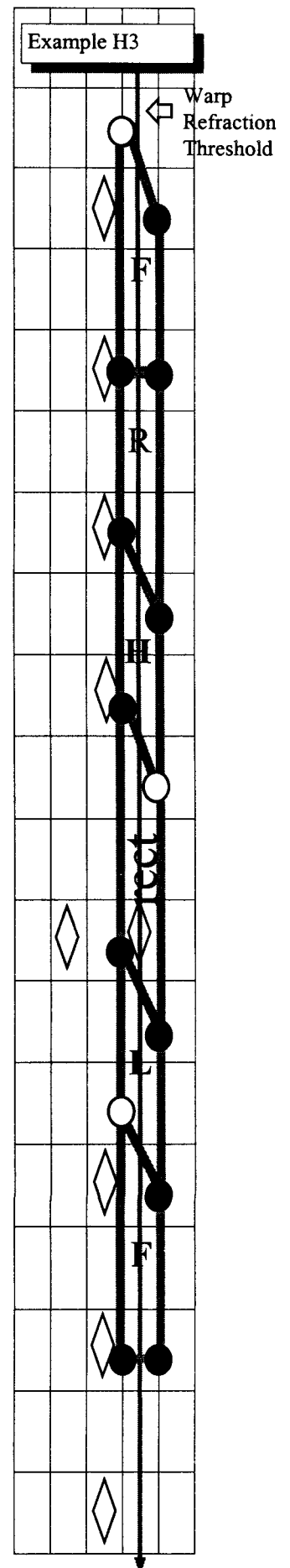
Example H3

* CD Track 6

The musical notation for Example H3 consists of two staves. The first staff is marked with a chord of A minor (Am). Below the staff, there are two rows of fret numbers and technique markings. The first row of numbers is: 2 5 3 5 3 5 2 5 7 5 7 8 5 7 5. The second row of numbers is: 7 9 8 10 8 9 7 9 12 10 12 13 10 12 9. The technique markings are: H.O., P.O., sl. H.O., P.O., sl. H.O., P.O., sl. H.O., P.O., sl. The second staff also has two rows of fret numbers and technique markings. The first row of numbers is: 12 14 13 14 15 13 14 12 14 17 15 17 17 15 17 15 14. The second row of numbers is: 12 14 13 14 15 13 14 12 14 17 15 17 17 15 17 15 14. The technique markings are: H.O., P.O., sl. H.O., P.O.

Silly as it all sounds, I find it much easier to organize the fretboard this way. Dealing with the 3&2 string pair is the same as the rest if you think of the difference in fingering as "an optical illusion created by crossing The Warp Refraction Threshold."

Here are the five geometric shapes as they appear on string set 3&2 (Ex. H3). Note that while the starting shape is different ("F", or Forward Trapezoid), they still appear in the same order as Ex. H1 and H2. If you take each shape and move the notes on the 2nd string up the neck one fret, the original shapes are restored; although doing this will certainly mess with the sound. Try it!



Across the Strings

Example V1 shows how these shapes connect moving across the strings. Example V2 shows how they connect the next position higher. If you already know the pentatonic scales, these will look familiar. Again, Ex. V2 is a continuation of Ex. V1; they fit together like jigsaw puzzle pieces. Like the “up the neck” examples shown a few pages ago, there is overlap of fingerings. Better still, the shapes in both examples appear in exactly the same order.

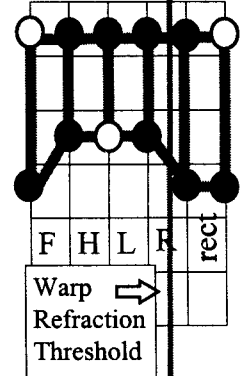
Example V1

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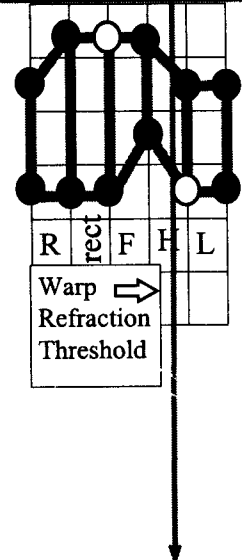
Example V2

* CD Track 8

Example V1



Example V2



Let's add the fingering sets from examples V1 and V2.

Chart a:

		Across the strings				
Up and down the neck	String Pairs:	<u>6&5</u>	<u>5&4</u>	<u>4&3</u>	<u>3&2</u>	<u>2&1</u>
						H
	Ex. V1:	F	H	L	R	rect
	Ex. V2:	R	rect	F	H	L
			L			F
			F			R
			R			H
			H			

Here is the scale chart in its fully fleshed out form. In the end, this will be your pentatonics reference guide.

Chart b:

		Across the strings				
Up and down the neck	String Pairs:	<u>6&5</u>	<u>5&4</u>	<u>4&3</u>	<u>3&2</u>	<u>2&1</u>
		L	R	rect	F	H
		F	H	L	R	rect
		R	rect	F	H	L
		H	L	R	rect	F
		rect	F	H	L	R
		L	R	rect	F	H
		F	H	L	R	rect


If you're paying close attention to how this is emerging, you'll notice that "up the neck" follows one order (H, rect, L, F, R, etc...) and "across the strings" follows another order (H, L, R, rect, F, etc.....).

Think about it for a moment. By memorizing five shapes, the "up the neck" and "across the strings" orders, and an understanding of how the Warp Refraction Principle works, you can manipulate pentatonics in any way you choose. Not only that, it's a lot easier to memorize three simple ideas than a million dots. Think less, play more.

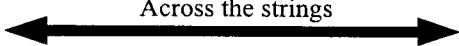
Diagonal

Here are two examples of diagonal pentatonics. As mentioned before, diagonal means moving up the neck and across the strings at the same time. Example D1 is based on Box L on three string sets. There is an extra slide note at the end of each sequence of notes. The extra note is still in the scale, but not in Box L. This is a great illustration of how easy this can be to use effectively. Check out how Ex. D1 works out in the chart c. It's interesting that all five shapes appear diagonally the same way. This device can be used with all of them. Can you see it? Study the chart carefully to catch the repeating pattern.

Chart c:

String Pairs: 

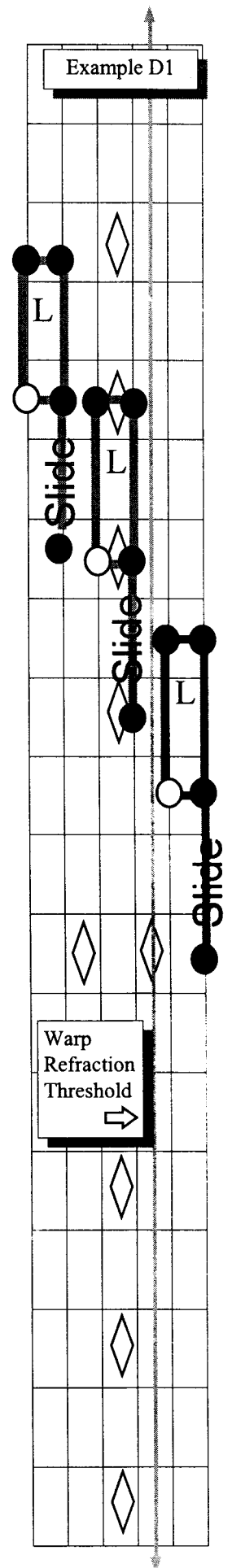
Up and down the neck

Across the strings 

	<u>6&5</u>	<u>5&4</u>	<u>4&3</u>	<u>3&2</u>	<u>2&1</u>
L	R	rect	F	H	
F	H	L	R	rect	
R	rect	F	H	L	
H	L	R	rect	F	
rect	F	H	L	R	
L	R	rect	F	H	
F	H	L	R	rect	

Example D1

* CD Track 9

Ex. D2 uses all five shapes. The highest note of each shape is the lowest of the next. This example uses a slide to get from one position to the next. Notice that in each subsequent diagonal row, the shapes are always following the same order, but offset. This is similar to what we saw in chart c. Please pause a moment and study the chart again.

Chart d:

Across the strings

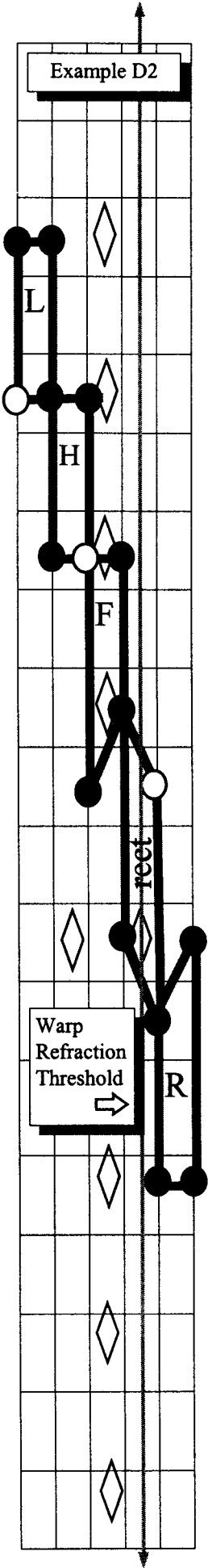
Up and down the neck

String Pairs:

6&5	5&4	4&3	3&2	2&1
L	R	rect	F	H
F	H	L	R	rect
R	rect	F	H	L
H	L	R	rect	F
rect	F	H	L	R
L	R	rect	F	H
F	H	L	R	rect

Example D2

* CD Track 10





Reverse Diagonal

Example D3 starts higher up the neck on strings 6&5, and moves diagonally toward the headstock to strings 2&1. The 1st finger slides get you from position to position. Like the previous examples, all five shapes are present in each reverse diagonal row.

Chart e:

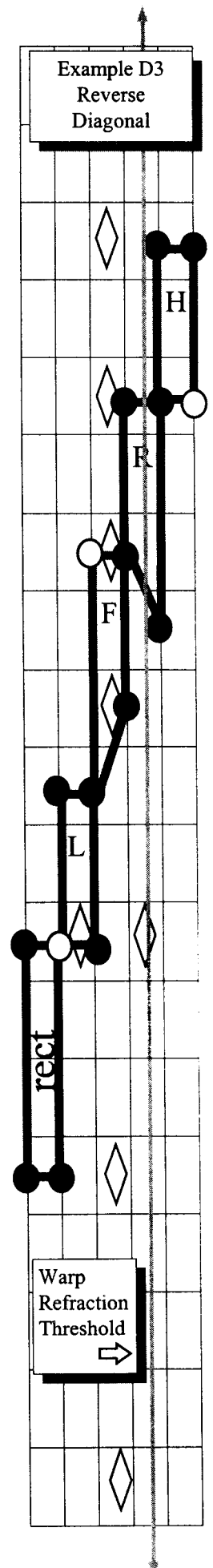
Across the strings

String Pairs: 



<u>6&5</u>	<u>5&4</u>	<u>4&3</u>	<u>3&2</u>	<u>2&1</u>
L	R	rect	F	H
F	H	L	R	rect
R	rect	F	H	L
H	L	R	rect	F
rect	F	H	L	R
L	R	rect	F	H
F	H	L	R	rect

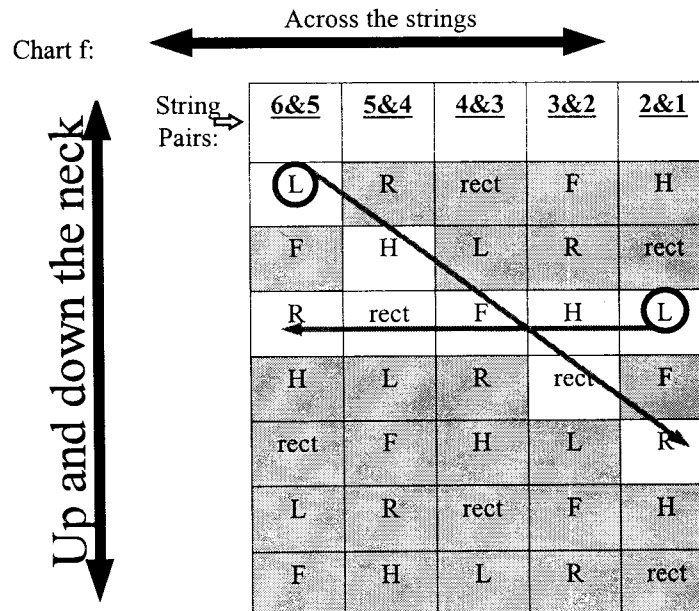
Example D3



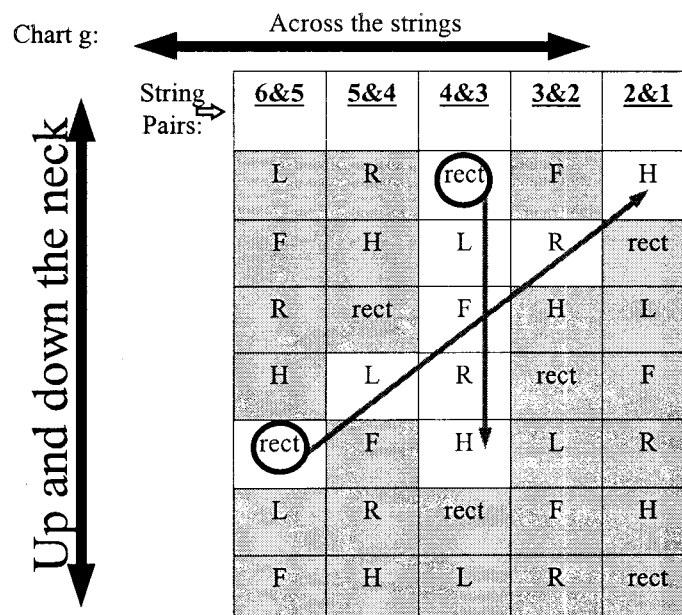
Let's backtrack a little and have another look at these charts. This section of the chapter reveals some important ideas about how the guitar works. Chart f compares the order of how the shapes appear moving diagonally (upper left to lower right), to the reverse order of the third row. You should notice that the shapes appear in the same order in both cases. Follow the arrows.

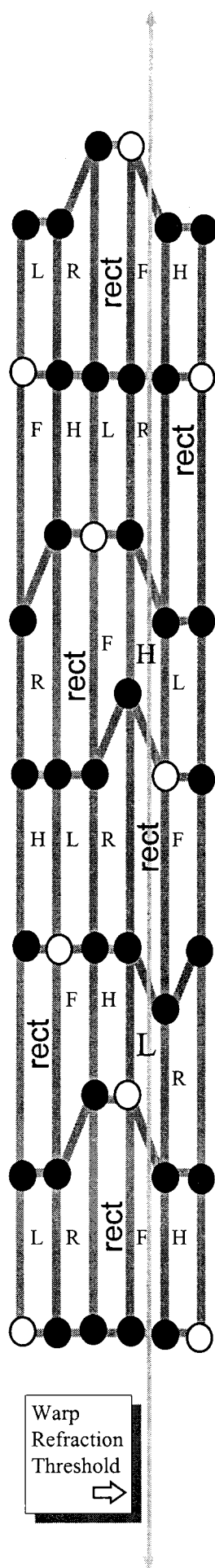
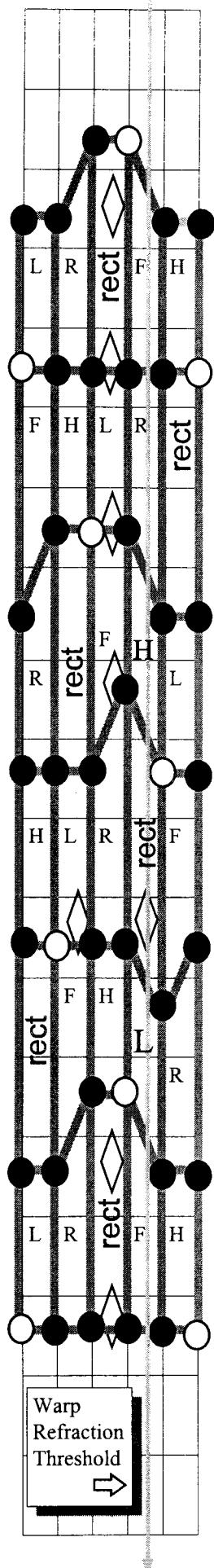
This happens because of a simple music theory idea: moving up in 5ths (the distance of the starting pitches of the diagonal row) gives you the same note relationship as moving down in 4ths (the distance of the starting pitches of the 3rd row moving right to left).

Notice that each diagonal row has a "left to right" counterpart.



I must confess, I was a bit frightened when I stumbled on this. But now, let's do the same kind of task with chart g. Compare the reverse diagonal (lower left to upper right) row to the 3rd column. Notice the same thing occurs; moving reverse diagonally gives the same shape order as moving up the neck. As you might expect, each reverse diagonal row has an "up the neck" counterpart. Things have a scary way of repeating themselves on the neck of a guitar.





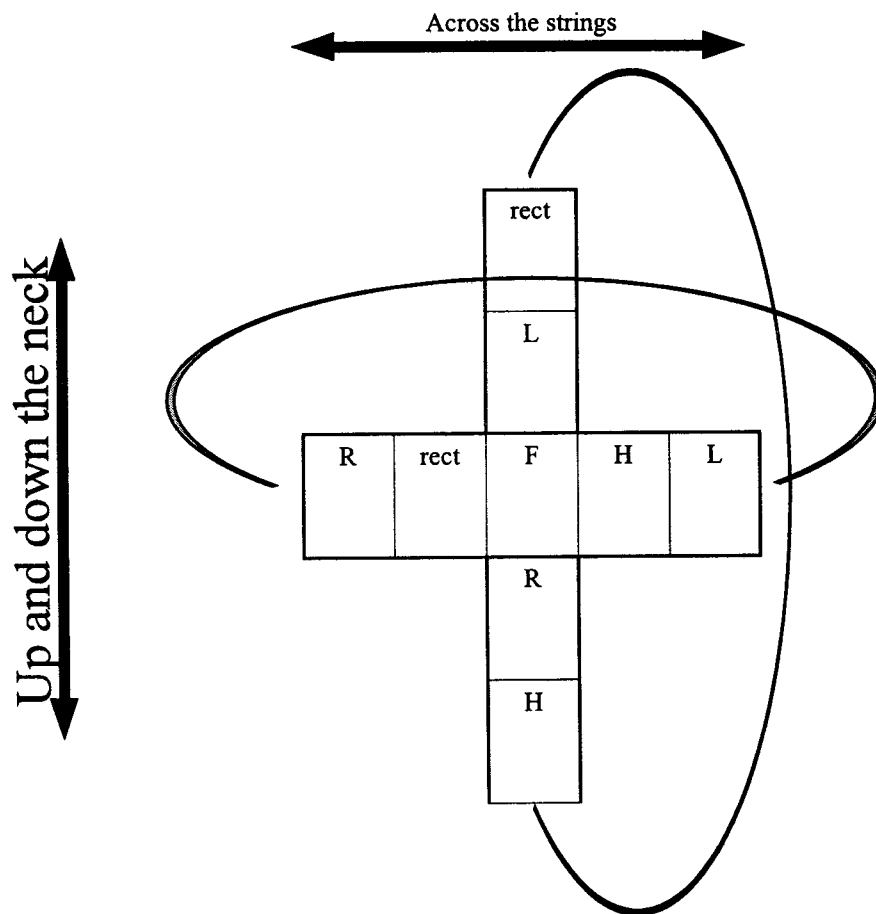
Up and down the neck

← Across the strings →

String Pairs: →

	<u>6&5</u>	<u>5&4</u>	<u>4&3</u>	<u>3&2</u>	<u>2&1</u>
L	R	rect	F	H	
F	H	L	R	rect	
R	rect	F	H	L	
H	L	R	rect	F	
rect	F	H	L	R	
L	R	rect	F	H	
F	H	L	R	rect	

This page is intended to reel all the information we've covered in to one neat package. If you compare the fretboard diagram on the far left to the chart on the right, you'll see how the letters and numbers on the chart actually appear on the fretboard. All the examples given have been shown in the key of A minor, but this idea works in all keys. The middle chart shows the shapes without a fretboard. When changing keys, think of the middle chart as a moving conveyor belt that is attached at both ends. The last row is the same as the first row. Placing it in different keys is a simple question of "sliding" the whole system to a different place on the fretboard.



Maybe this is a bit of a stretch, but this diagram illustrates how I think of all the information. There is one order the shapes appear in when moving up and down the fretboard, and another order they appear in when moving across string pairs. Regardless of what key, position or string pair, this relationship is always true. Not only that, but all other movements on the fretboard are simply combinations of these movements.

A Two Dimensional World Revealed

Fretboard Geometry, more than anything else, is meant to provide a “map” for the fretboard that makes sense and is easy to memorize. It is neither the “correct” nor only way. All the musical examples given are really only variations of one little exercise. They were designed specifically to demonstrate the ideas presented here. The main idea is to understand how the fretboard diagrams, charts and musical examples all relate to each other. Once you “get it,” it might be a good idea to come up with some of your own riffs. Try following your own paths through the chart. Start in different positions and string pairs. Even better, try coming up with your own way of organizing pentatonics.

Ultimately, you will want to reach a point where this becomes automatic, and your fingers simply “understand.” More of your concentration can go in to what you hear and feel.

Socrates’ philosophy stated that the ultimate knowledge was no knowledge. Before I stumbled on to this approach, I thought I knew something about the guitar. When I came up with this, my understanding of pentatonics grew a hundred fold. The deeper I got in to this, the more stuff I found. After ten years working this way, I haven’t found the “bottom” yet. All that happens is that I keep realizing how much I’ve learned, how little I really know, and how far I still have to go.

It doesn’t end.

Captain, She’s Breaking Up!

It’s nice to have things set up in a nice, clean orderly fashion. Isn’t it? Music isn’t like that though. When we play, write, or otherwise place ourselves in a creative musical situation, chaos often prevails over order. A physicist named Steven Hawking frequently talks of the Entropy Theory, which states that objects, when left to their own devices, will orient themselves in a random fashion. Did you ever notice how easy it is for the back seat of your car to get messy? Entropy at work.

Humankind has a natural propensity toward making sense of its surroundings. In reality, it never quite seems to work out that way. For me, the tension between logic and entropy creates a pretty exciting creative force.

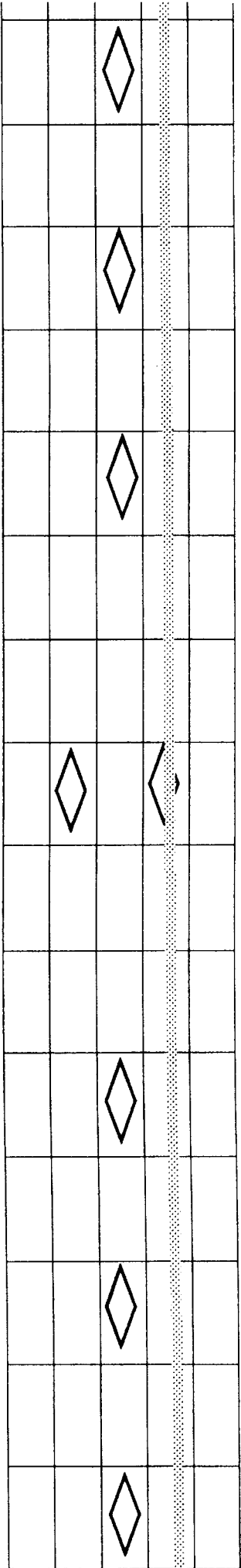
Work through all the exercises. When you’re done, go clean your car!

Chapter 3 Review

- Pentatonics can be broken down in to five 4-note “shapes” on two strings.
- Organizing them that way makes the shapes easier to visualize.
- The five shapes repeat themselves in a logical and predictable manner.
- This approach demonstrates the “two dimensional” nature of the guitar’s fretboard.
- This works in all keys.

CHAPTER 4:

ALTERNATE PENTATONICS— How to use pentatonics without anyone knowing



Alternate Pentatonics

(or, How to Always Use Pentatonics While Sounding Like You Never Use Them)

I think everyone goes through this. You play and practice, perfecting your “thing,” only to get tired of the way it sounds by the time you get it right. For me, it was pentatonics. I realized early on that mastering them was a key element in rock soloing. Off I went, copping all the Jimmy Page licks (and Alvin Lee, Duane Allman, Jeff Beck, Carlos Santana, Terry Kath, Randy Bachman, Ritchie Blackmore, Jimi Hendrix and about a hundred others....) I could get my filthy hands on till I had a handle on it. The problem was that by the time I understood what they were doing, I wanted to be doing something else. Worse yet was that my fingers had developed all these habits from endless practicing. To do something completely new, I had to fight with my fingers and learn to let my ear (and heart) be the final judge. During this phase I would either sound technically perfect (but bored silly), or completely adventurous (and sloppy to the point of being unintelligible). There had to be a middle ground where you can maintain that exciting creative spark while being able to call on your technique resources. For me, the solution that seemed to work was to find new ways to use what I already know like, say, pentatonics!

Rant Alert - Rant Alert - Rant Alert - Sound the Alarm!

Maybe I'm the only one who thinks this, but it appears as though current trends in music swing back and forth like a pendulum. It seems like we oscillate back and forth from bare bones production values to the “Kitchen Sink” approach where more is better. In guitar, you only have to compare Yngwie Malmsteen and Michael Angelo to Billy Corgan and Kim Thayll to see this. Within this “Swing of the Musical Pendulum,” I think we swing straight past what I consider to be the musical ideal.

In the '80s it was cool to have chops and to give the impression you knew what you were doing. From a pure technique viewpoint, what was expected from a guitarist was significantly raised. That's good. At the same time, guitarists were often rated purely on their chops. Really fast (but mindless) noodling became the order of the day. That's bad.

These days almost the opposite is true. Today, the music itself is more important than an individual's technical ability. That's good. At the same time, records are routinely released where bands are playing out of tune and out of time. The musicians often sound like no one is listening to anyone else. The quality of sound at live shows is lowered considerably. And we're supposed to think it's all cool (talk about the Emperor's New Clothes...). Also, any record released that smacks of any level of polish is flatly ignored and considered insincere. The result is that a lot of great music is being made that you never hear about. That's bad.

I don't think I (or anyone else, for that matter) have achieved the “Musical Ideal” of balancing musical sincerity and polish. I think it's possible though. Ludwig Van Beethoven came as close as I've ever heard.

All Clear....Rant Alert Passed...Everyone out of their bunkers!

Let's cut to the chase. What I hope to show here is some new ways of using pentatonics. As you work with these, it's important to hear the chord that goes with the scale. Even more important is to try to imagine how these would work in context. Some will be more difficult to understand than others. The focus will be on the notes in the scale, so not every fingering possible will be given. That's a different topic.

The easiest way to learn a scale is to learn its fingering. Most of the time, scales are presented in that manner, starting with the lowest note. When put to real use, hardly anyone actually uses them that way. To me, the ultimate goal should be to imagine the sound you want, and allow the fingering you need to "emerge" under your fingers. The feeling should be something like, "Y'know, I kinda like the way that sounded. Hey look! That was a pentatonic lick! (surprised facial expression)."

With this series of exercises, the fingerings are shown as diagrams. A riff is given with each one. In each case, the riff starts somewhere in the middle of the fingering. After you learn each fingering, it's important to learn how to "get in" from any point; not just the lowest note. In some cases, the root of the chord you're playing on is not in the scale given. Two points are being made: 1) learn to find the music inside any scale you learn, and 2) be able to find the scale relative to the chord/key you're on. Both of those things take practice.

Have a friend play the chord given while you practice each of these. Then, have them move the chord around so you can practice moving the riff around the neck until you can play it in any key.

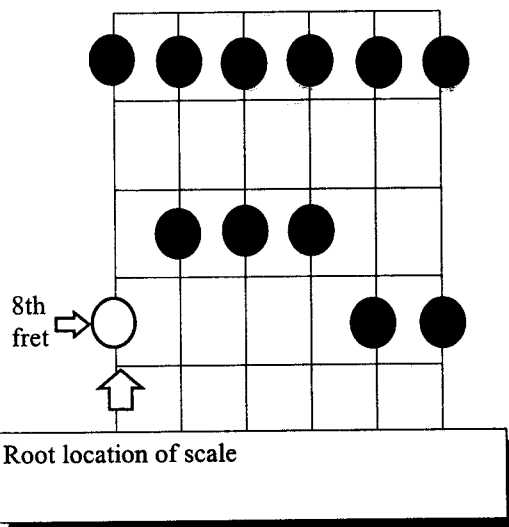
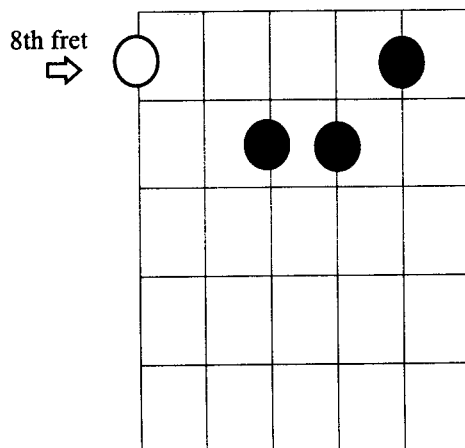
Example 1 will serve as our starting point. This, like all the others is based on the old, familiar "Stairway to Heaven" pentatonic fingering.

Example 1:

C major Pentatonic - Use over C or Cmaj7

* CD Track 13

Cmaj7 chord (open circle shows root) 5th and 1st strings not played



C, C7 or Cmaj7

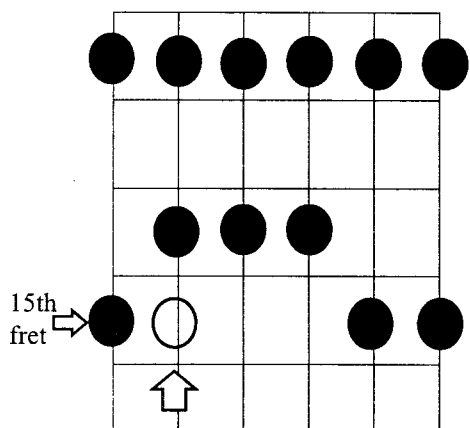
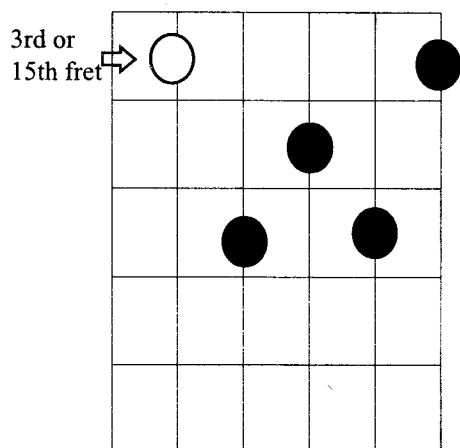
Example 2 is the same riff as Example 1, but transposed up a fifth (up seven frets). The fingering is exactly the same, but found in a different place on the neck. It produces an interesting sound because the root is not found within the pentatonic scale. Using this, it's easy to produce an "unfinished" or unresolved feel. The absence of the root assures this, though it does make it tricky to find. In the fingering given, the root location is shown. Remember, it's not actually played. It's just there for reference; so you can find this fingering over any chord in any key. Eric Johnson used this one quite a bit in "Cliffs of Dover."

Example 2:

G major Pentatonic - Use over C or Cmaj7

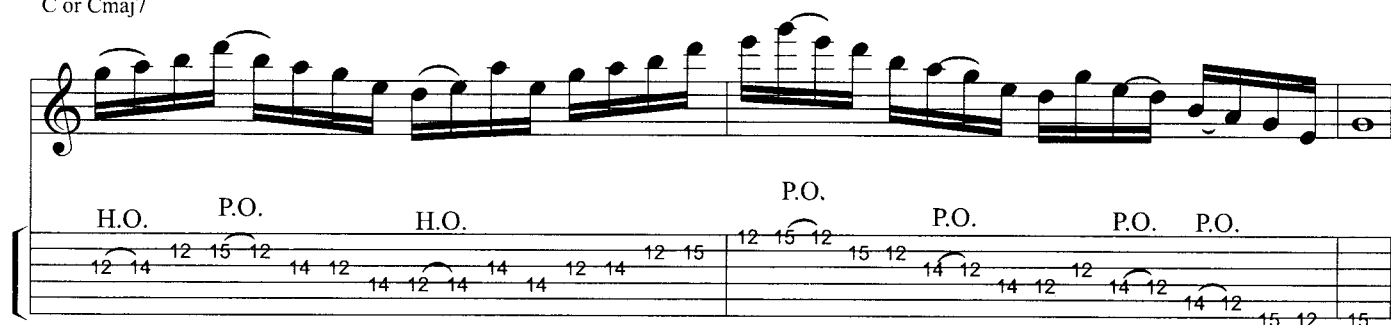
* CD Track 14

Cmaj7 chord (open circle shows root) 6th string not played



Root location of chord relative to scale (not played)

C or Cmaj7

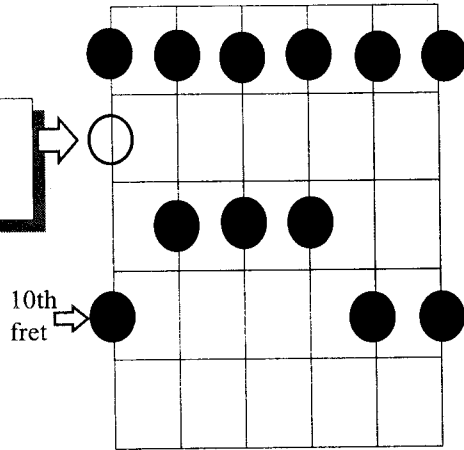


Example 3 does take some getting used to. For one thing, all the notes that sound like “resting points” will be different than what you’re used to. In a way, it’s cool because you can play all your favorite rock licks, and they’ll sound completely different. When practicing this, give your ear a chance to get used to the way it sounds. You may get to like it. Using this technique produces a “lydian” kind of sound because of the F# (or the #4th degree) against the C (or Cmaj7) chord.

Example 3: D major Pentatonic - Use over C or Cmaj7 - produces a decidedly “Lydian” sound

* CD Track 15

Root location of chord relative to scale (not played)



C or Cmaj7

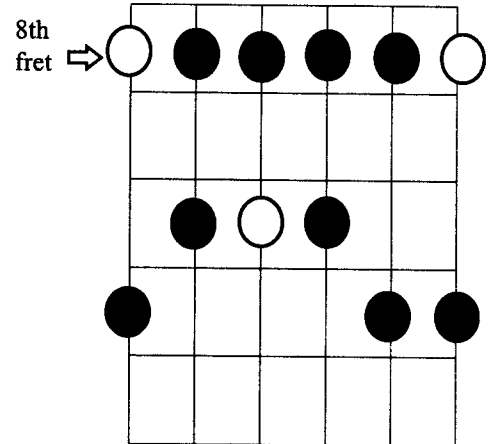
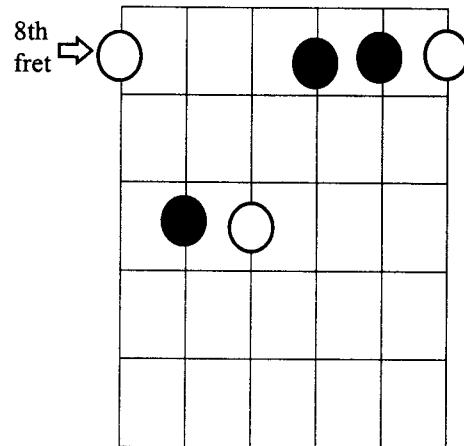
Including this one (example 4) might be a bit redundant. It's simply here to help you understand how the next two examples work. This is the minor pentatonic scale we all know and love (or hate, depending on your view).

Example 4:

C minor chord (open circle shows root)

C minor Pentatonic - Use over Cmin or Cmin7

* CD Track 16



Cm or Cm7

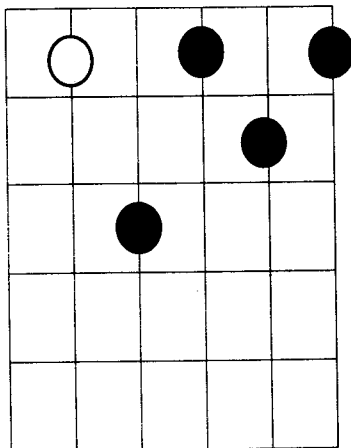
I think of this one (Example 5) as "The Carlos Santana Pentatonic." I have no idea if he thinks this way or not. All I know is that when I use it, it reminds me of his playing. What's unique here is that the fingering avoids the minor 3rd, and seems to emphasize the 2 (or 9, depending on how you think of it). Again, this riff is just like the one in example 4 except played a fifth higher.

Example 5:

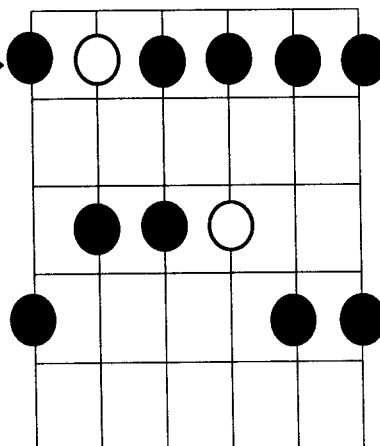
Cmin7 chord (open circle shows root)

G minor Pentatonic - Use over Cmin or Cmin7

3rd or 15th fret →



3rd or 15th fret →



* CD Track 17

Cm or Cm7

H.O. P.O. P.O. P.O. P.O. H.O. P.O.

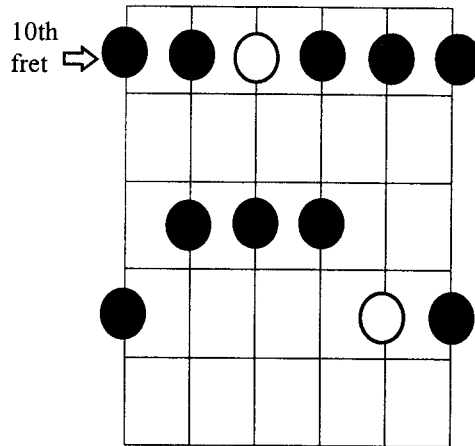
17 15 17 15 17 15 15 18 15 18 15 17 18 15 17 15 17 15 17 15 17 15 18 15

Of all of the examples so far given, this one is probably the most difficult to “get control of.” When I first tried it, it sounded as though I was playing in the wrong key. At the same time, what’s neat about it is that it completely avoids all the obvious notes to play over a minor chord. It’s great way to get new things in to your playing without having to totally change your way of thinking. It’s easy to find too. Simply play a minor pentatonic two frets higher than you normally would.

Example 6:

D minor Pentatonic - Use over Cmin or Cmin7

* CD Track 18



Cm or Cm7

Those of you who are theory heads will notice that in the major pentatonics, each scale given is a fifth higher (or 4th lower which is really the same thing...) than the previous one. The same thing happens with the minors. Also, each subsequent scale gets more mode “specific” (in each category; major or minor). The reason this happens is because the “regular” pentatonic has none of the mode’s “characteristic notes” (for more info, please refer to the chapter, “Decode Your Modes”). To see what I mean, please take a look at the chart given.

Pentatonic type (major or minor)	Pentatonic scale played from this degree relative to chord:	Can be used with these modes
Major	root	Lydian Ionian Mixolydian
Major	5th	Lydian Ionian
Major	2nd (or 9th)	Lydian
Minor	root	Dorian Aeolian Phrygian
Minor	5th	Dorian Aeolian
Minor	2nd (or 9th)	Dorian

7th Chords

Ever notice that pentatonics seem to “kind of work” just about everywhere? Yeah. Me too. It can be frustrating to find the right one for the right place sometimes. To be honest, I discovered a lot of this by trial and error. The fact they “kind of work” in some places can be misleading. If it “kind of works,” and we’re not feeling particularly ambitious, we might settle for it.

Making pentatonics work over 7th chords can be tricky business. Paradoxically, both the major and minor pentatonic will usually work over a seventh chord. Even though they both “kind of work” over any 7th chord, but I always felt like neither really “did it.” At first I decided that pentatonics don’t really work well in these instances. But lo and behold, they do work. They just need a bit of a facelift.

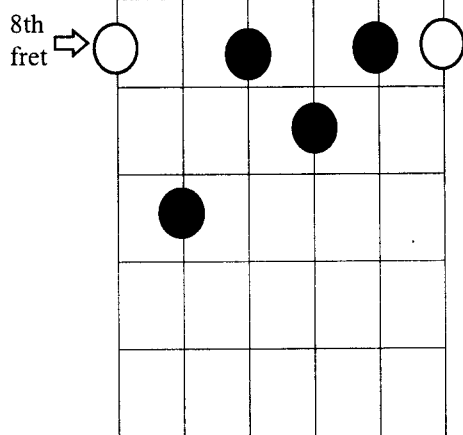
Over the next few pages, we’ll look at some neat variations on pentatonics that work real well over different types of 7th chords. They’ve been deliberately set up so that the “two notes per string” thing is maintained. This helps when you want to do little hammer-on and pull-off type stuff.

Example 7 is a good way to play pentatonics over a 7th chord. Playing it gives you a sound that is right in between a scale and an arpeggio. Because the major 3rd and $\flat 7$ th coexist in the same scale, it gives a strong mixolydian sound. To my ears, those two notes tell the whole story (almost).

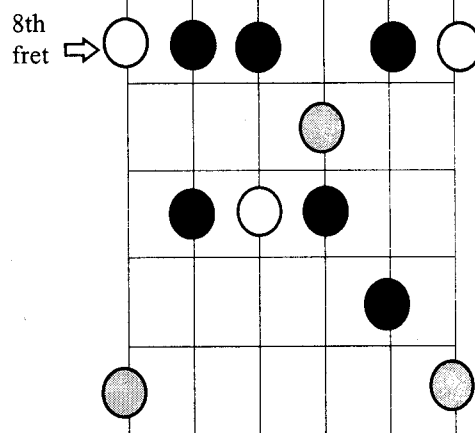
Example 7:

C7 chord (open circle shows root)

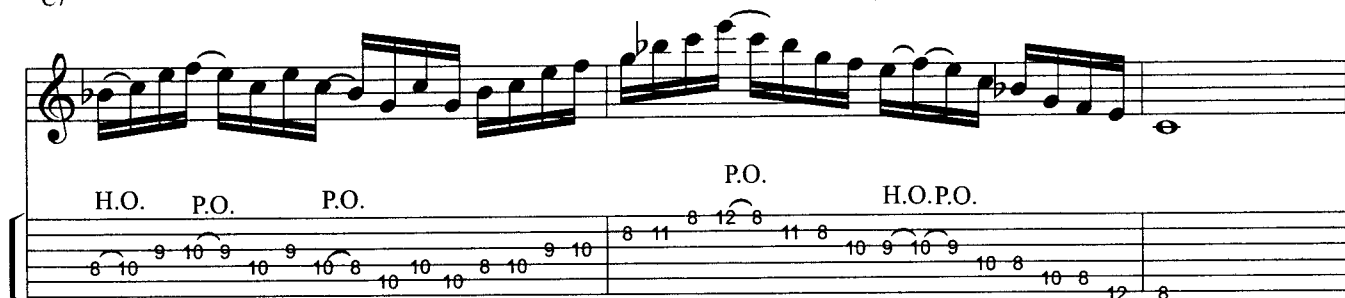
* CD Track 19



C mixolydian pentatonic #1 - C minor Pentatonic where major 3rd replaces minor 3rd - Use over C7. The gray circles show the notes that were changed from the original pentatonic.



C7



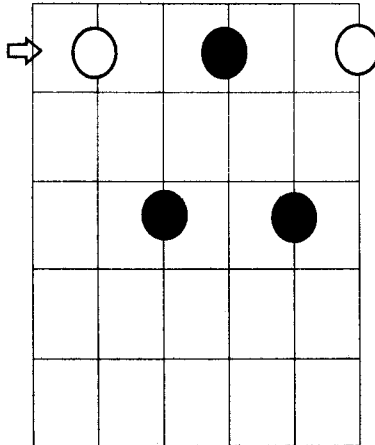
While we get this scale (example 8) in a different way, it has a similar (but not exact) sound to Example 7. What makes them different is the notes that are left out (when compared to a mixolydian scale). To me, the 2nd (or 9th) really stands out in this one as a sound to “lean on.”

Example 8:

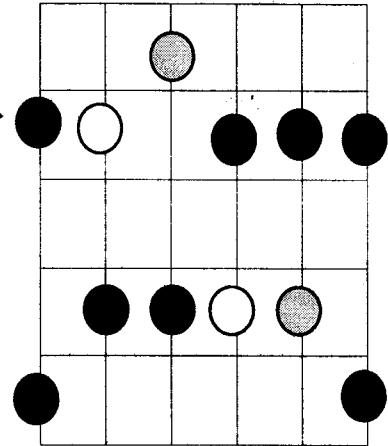
* CD Track 20

C7 chord (open circle shows root)

3rd or
15th fret



3rd or
15th fret



C mixolydian pentatonic #2 - G minor Pentatonic where 6 replaces b7 - Use over C7
The gray circles show the notes that were changed from the original pentatonic.

C7

H.O. P.O. P.O. P.O. H.O. P.O.

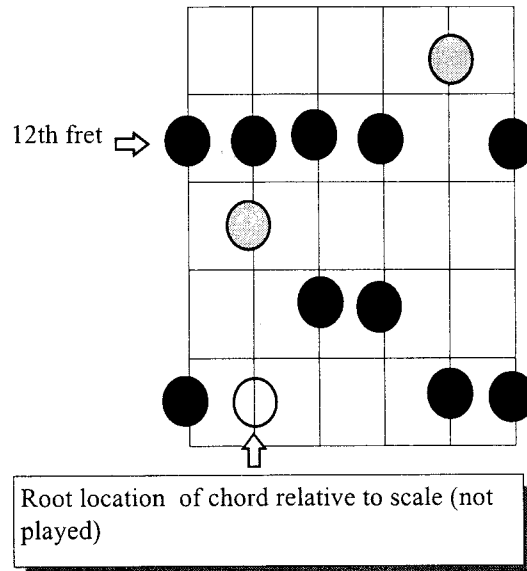
14 17 15 17 15 17 15 17 14 17 17 15 17 15 17 15 18 15

Example 9 is a thing I use to get a “jazzy” kind of vibe over a 7th chord. One neat feature here is that you never hit the root within the scale. Not hitting the root gives more of a sense of “going somewhere.” A good tip to use to “find” the scale (besides the one given in the diagram) is to know that the 1st finger note on the 6th string is the 3rd of the chord. It’s easier to do than explain.

Example 9:

* CD Track 21

C mixolydian pentatonic #3 - E minor Pentatonic where b5 replaces 5- Use over C7. The gray circles show the notes that were changed from the original pentatonic.



C7

H.O. P.O. P.O.

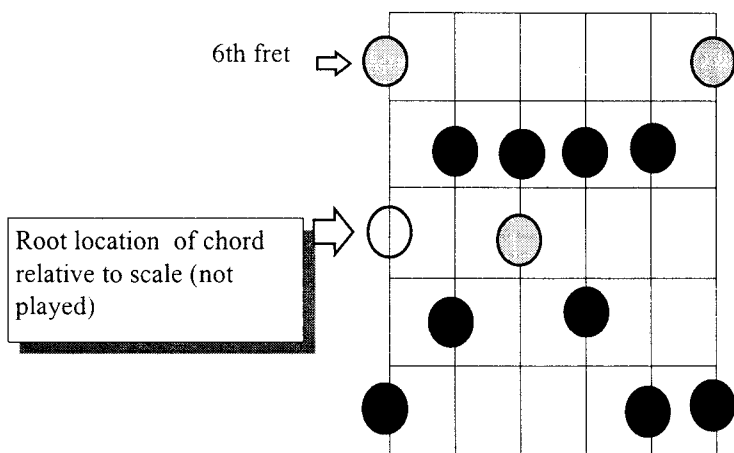
P.O. H.O. P.O.

12 14 12 14 12 14 12 13 14 12 14 11 15 12 15 12 15 11 14 12 14 12 14 12 13 12 15 12

This one takes some getting used to. It takes the “jazzy” sound of example 9 a step further. You get it by flattening the root of a minor pentatonic, but keeping the relationship of the rest of the notes as they were. Even though it sounds weird to “flat the root” of a scale, that’s what you do.

Example 10: C Lydian $\flat 7$ Pentatonic - B minor pentatonic with a flatted root

* CD Track 22



C7

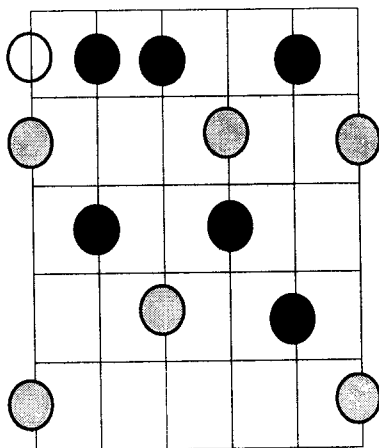
H.O. P.O. P.O. P.O. H.O. P.O.

Example 11 is a great way to get a “darker” more “diminished” sound over a 7th chord without resorting to your favorite Yngwie Malmsteen harmonic minor licks. To see what I mean, try playing some of your favorite blues licks using this fingering. The result is truly twisted, but fun.

Example 11: C Altered Dominant Pentatonic - Minor Pentatonic (b9 replace root, major 3rd replaces minor 3rd) use over 7th chords to produce a darker, more “diminished” or “harmonic minor” kind of sound.

* CD Track 23

Root location of chord relative to scale (not played)



C7

H.O. P.O. P.O. P.O. H.O. P.O.

Let's think about the topics we've covered over the last two chapters. In Chapter 3, we looked at pentatonics in terms of "five shapes on two strings." With that approach, we discovered that the patterns that emerge repeat themselves in a way that is predictable, and makes good common sense. It helps us understand the instrument better. It shows us things about the instrument we suspected might be true, but never really thought about.

In Chapter 4, we looked at some new ways to use pentatonics by playing them in positions that are different than the "norm." Also, we found that pentatonic scales can be changed to suit our needs. To keep the premise simple enough to digest, each of the scales was presented using one fingering in one position.

By combining the two concepts, the ground we gain is almost limitless. Look over the next few pages. You'll notice that each guitar neck diagram contains each of the 7th chord pentatonics, but presented all over the neck instead of one position. Look at each for a moment, and see if you can pick out five positions for each scale. Look again, and see if you can pick out five "two string shapes" that repeat all over the neck in the same way the other pentatonics did. See if they repeat themselves horizontally and diagonally.

You'll find that the only thing that really changes is the shapes themselves. But the new shapes will repeat in precisely the same manner the old ones did.

When I first realized this, I thought my head would explode. It was almost too much information to understand at one time.

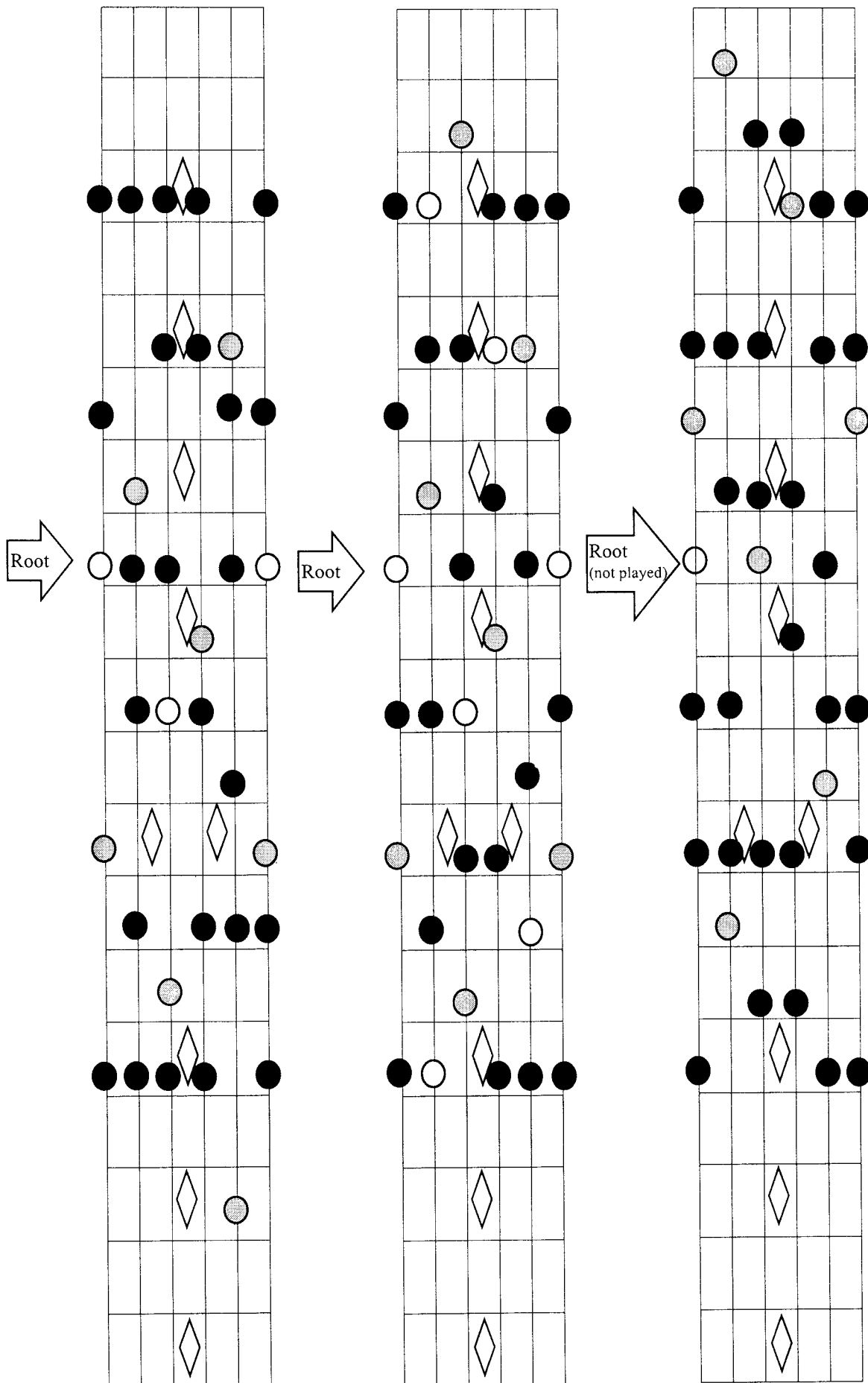
The term pentatonic literally means "five tones." And that's ALL it means. We guitarists have always used the term to describe "them boxy things" we're so familiar with. But any scale, regardless of the notes involved is considered pentatonic if there are only five. Ask yourself this unsettling question: If there are twelve notes in an octave, how many combinations of five notes are there if you explore them all? I hate to be the bearer of bad news, but if you start examining the mathematical possibilities, you may be more likely to find the last digit of "pi" sooner! OK, I'm exaggerating, but it will take a long time.

Of course, in order to truly master all this information, you really have to be able to use it in any key. Conceptually, it's pretty simple. Just take the whole "kit and caboodle" and move it to whatever key you need. But keep this in mind too: Understanding something on a musical level and actually having the ability to put it into practical use are two completely different matters. Just because we understand how Michael Jordan makes a great shot doesn't mean we can do what he does. That's why the last page is blank neck diagrams. If I was a sharpshooting marketeer, I would tell you that this book is "interactive" because of those pages. Kidding aside, that's why they're there; so you can map these out and experiment in whatever way you see fit.

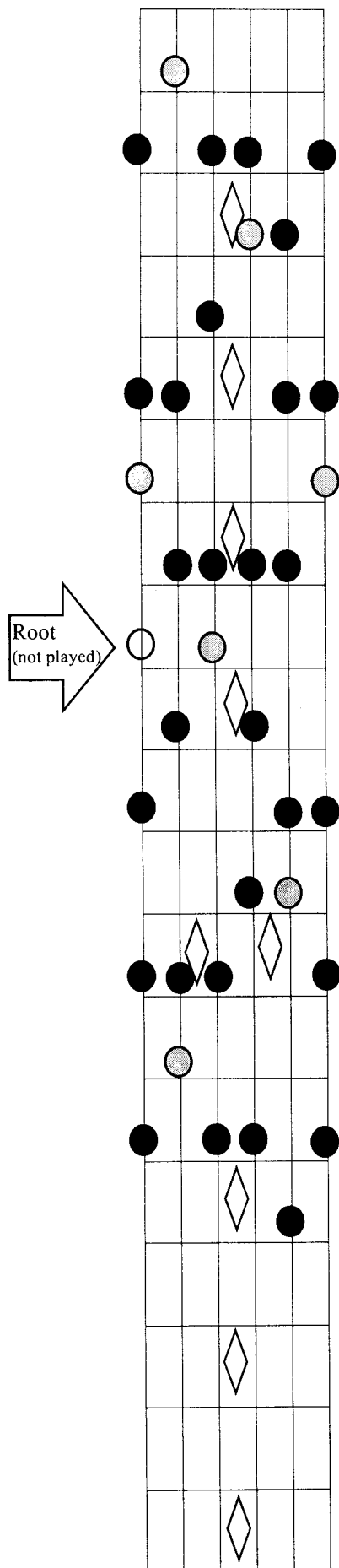
Mixolydian Pentatonic #1

Mixolydian Pentatonic #2

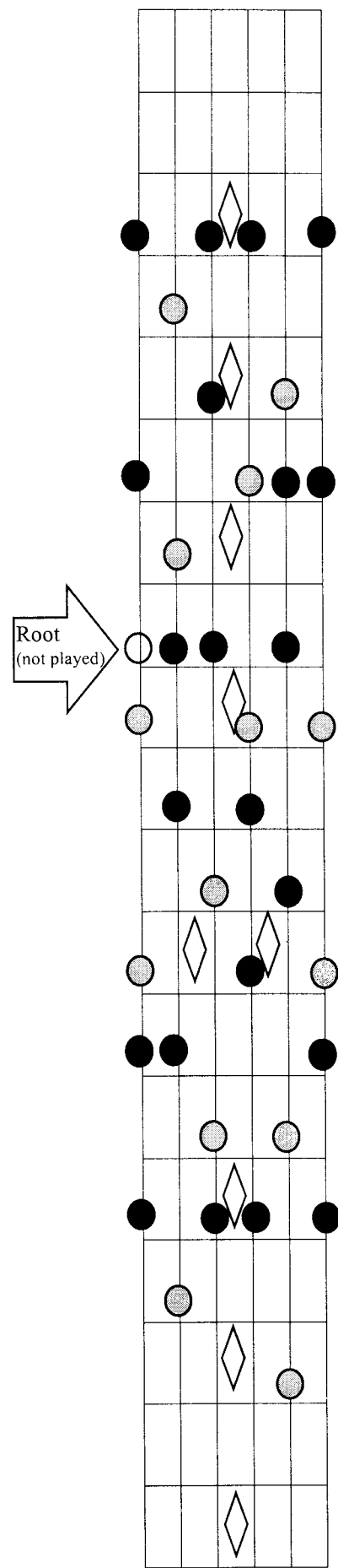
Mixolydian Pentatonic #3



Lydian $\flat 7$ Pentatonic



Altered Dominant Pentatonic



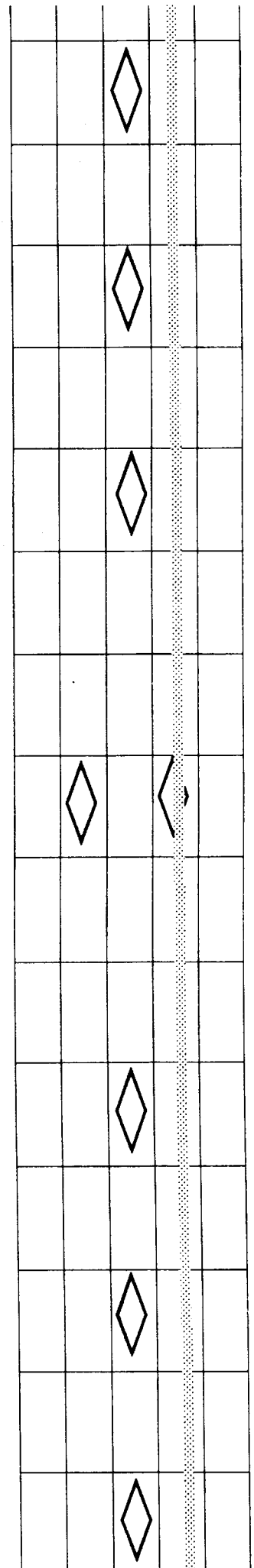
Chapter 4 Review

- Playing the same pentatonic licks in different places relative to the chord (or key) allows you to use old ideas to create new textures.
- While some of these sound unusual at first, once your ears become accustomed to their sound, their application becomes obvious.
- While all of the examples given use one fingering, these same ideas will work across the entire fretboard if you apply the principles of Fretboard Geometry to these.

CHAPTER 5:

MODES FOR MORONS—

Use pentatonics to find modes



Modes for Morons

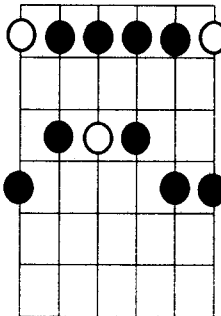
I'm going to contribute to a trend I don't like much: this "morons" thing. By now, you've been exposed to at least one version of those yellow books (Windows for Morons, DOS for Morons, Esoteric Motorcycle Repair for Morons, Thermonuclear Science for Morons...the list goes on...). Please tell me, who in the world feels as though their self-esteem is raised by walking up to a check-out counter with one of these in their hands. It's like admitting you're dumb. I am dumb, but I want to keep that fact a secret.

On the other hand, books like that do touch on an important idea about how humans learn: by doing. By starting with simple concepts that work, you can then see what else is possible. You learn what you need as you need it.

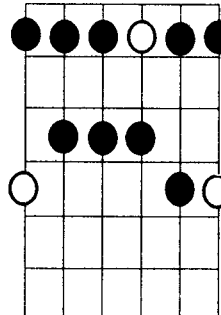
This is the kind of thing that I did for a long time without understanding it (as a guitarist, I was self-taught for 12 years, then got an education). After I discovered the "little box thing" that everyone calls a pentatonic scale, I noticed that I could add some notes in between to add color. At the time, I didn't question it much. I just played them. Asking why proved to be dangerous and time-consuming. In this chapter, we will start with some over-simplifications, then build on it a little. This is designed to be easy, not necessarily complete. This idea is meant to be the "bridge" between pentatonics and modes.

A picture is worth a thousand words. Here is how I think about pentatonics:

If this note is the root of the scale,
You are playing Minor Pentatonic.
It is the scale you use when all else
fails. If you are playing over an A
chord, play this scale at the fifth
fret. Stop groaning to yourself
and saying, "I know this already."



If this note is the root of the scale,
You are playing Major Pentatonic.
When switching from Minor pen-
tatonic to Major, just play the
same fingering three frets lower;
put your pinky where the first fin-
ger was. This scale sounds
"happy". If you play this over an
A chord, put your pinky at the 5th
fret.



A Side Note to Those Who Know Just Enough Theory to be Dangerous

What makes this confusing is the tendency of us guitarists to think “shapes” rather than notes. This “First finger = Minor/Pinky = Major” relationship seems to contradict what you learn if you study music theory. Music theory teaches you that the relative minor is from the 6th degree of any major scale; That the minor scale is “three frets below” the major. Well, that’s exactly the opposite of what I just said. Right? Well, here’s the deal. I’m talking about dealing with this stuff in a completely different way. Keep this thought in mind: when you play the same shape in a different spot on the neck, you are playing different notes. Learn to think “notes” rather than shapes. Learn to use shapes to learn notes. At the end of the day, it’s all about the notes you choose. How you get them is less relevant than how it sounds.

White Men Can’t Jump

I love that movie because it fools you in to believing that it’s about basketball and racism. The point made in the movie is that different things are important to different people. One character has to know he looks good while he plays and winning isn’t important. The other one doesn’t care how he looks. Winning is everything. They spend the movie learning from each other.

For me, I don’t care how cool I look. I don’t care if my ideas seem dumb to others. If they work, I look dumb while sounding pretty good. That’s fine by me. Somewhere in here, there is a point.

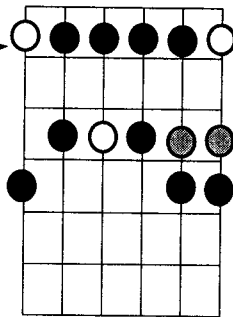
Students at frequently ask me to teach them modes. When I show them traditional approaches (like two-octave, in-position fingerings), they spend so much energy trying to remember it that the music gets lost. When I show them this approach, they look at me as though I’m insulting them because it’s so simple.

Modes for Morons (drum roll please...): take a pentatonic scale and add two notes; one on the B string, one on the E string. Voila! You can get the essence of all seven modes by learning three fingerings.

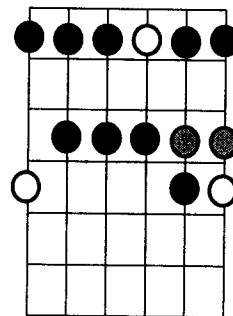
Have a look for yourself:

Example 1 - Modes for Morons, the complete set:

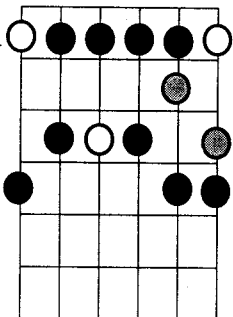
If this note is the root of the scale, you are playing Dorian



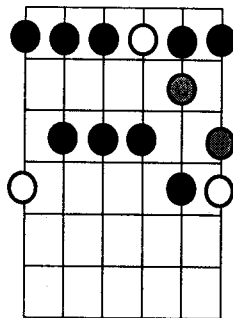
If this note is the root of the scale, you are playing Lydian



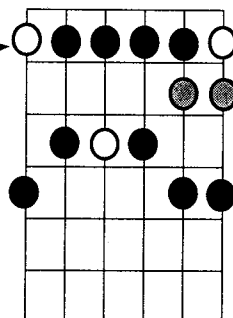
If this note is the root of the scale, you are playing Aeolian



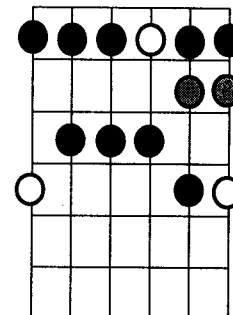
If this note is the root of the scale, you are playing Ionian



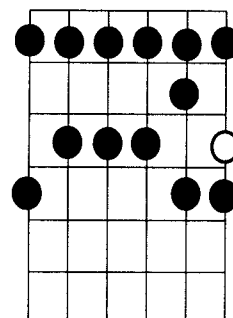
If this note is the root of the scale, you are playing Phrygian



If this note is the root of the scale, you are playing Mixolydian



If this note is the root of the scale, you are playing Locrian



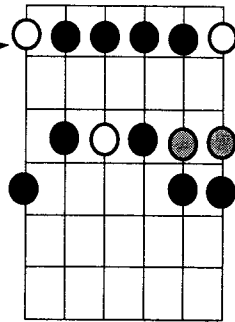
It isn't quite enough to just show all the shapes, their differences and similarities. To really learn it, we have to get it under the fingers while it makes sense to the ears.

Notice that in the next few pages, each of the pairs of shapes "look" the same, but sound very different from one another.

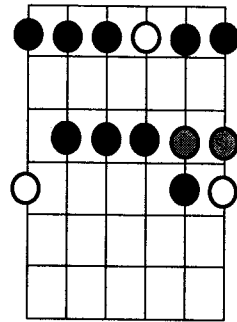
Play through all the examples, then experiment. Make sure you play the chord along with the scale. it's the relationship between the chord and the scale, not the fingering itself, that makes all the difference.

Example 2:

If this note is the root of the scale, you are playing Dorian



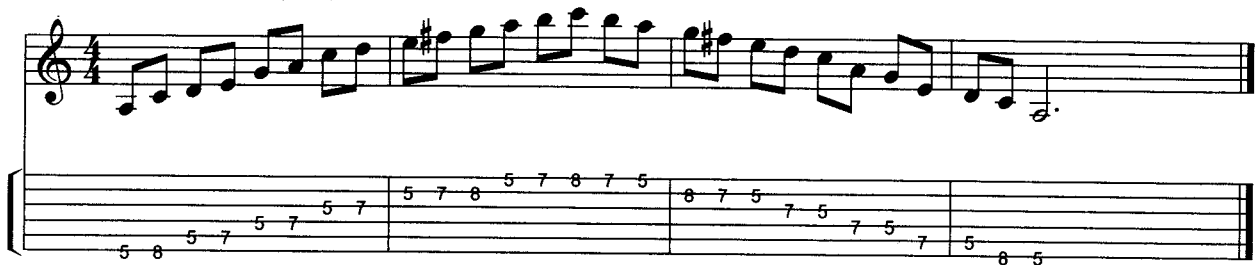
If this note is the root of the scale, you are playing Lydian



A dorian:

Am

* CD Track 25



A Lydian:

A

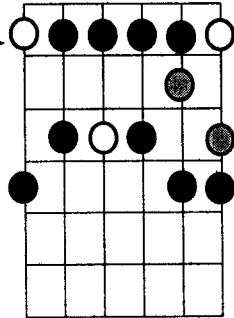
* CD Track 26



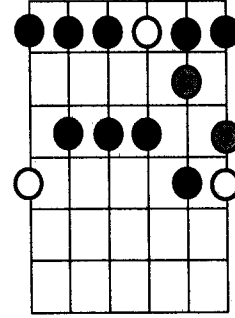
In these two fingerings, the note on the second string has been lowered by a half step. Doing that gives us Aeolian (natural minor) and Ionian (major). Notice that the lower half of the scale is still pentatonic while the upper half becomes a scale. It needs to be said again: These are meant to be easy, not complete. After all, if this technique gives you the sound you want, why make it harder than it has to be?

Example 3:

If this note is the root of the scale, you are playing Aeolian



If this note is the root of the scale, you are playing Ionian



A Aeolian (natural minor):

Am

* CD Track 27



A Ionian (major):

A

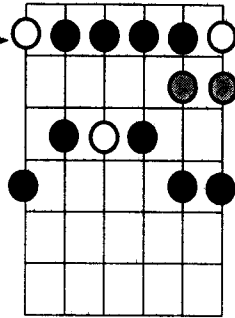
* CD Track 28



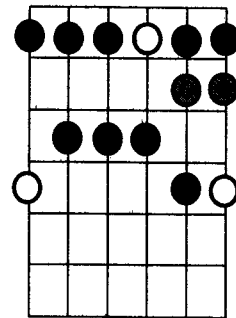
In these two examples the note on the first string has also been lowered by one fret. Doing so gives you the essence of Phrygian and Mixolydian.

Example 4:

If this note is the root of the scale, you are playing Phrygian



If this note is the root of the scale, you are playing Mixolydian



A Phrygian:

Am

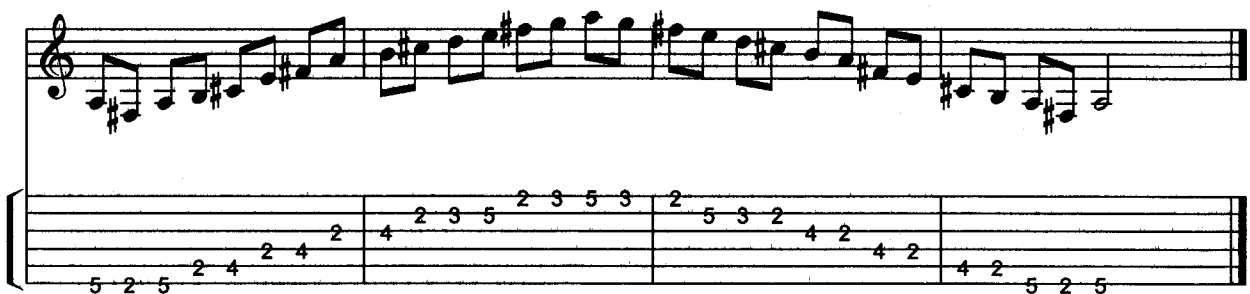
* CD Track 29



A Mixolydian:

A

* CD Track 30



So, What's Missing?

This approach gives you the “color” notes of each mode in the upper octave, but not the lower. As you use it, you’ll find it easier to concentrate on the sound. Once your ears get used to it, the next step is to find the same notes in different places. Learn to use these fingerings all over the neck.

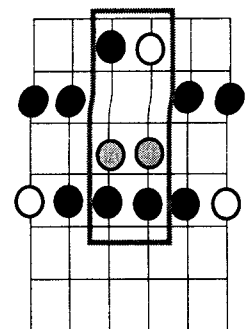
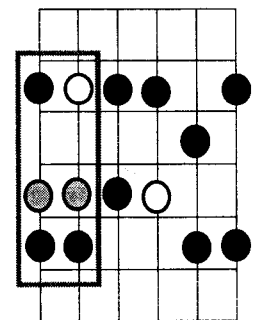
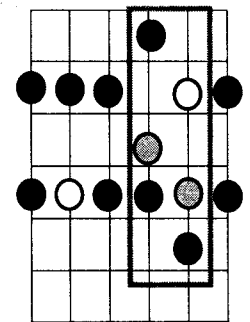
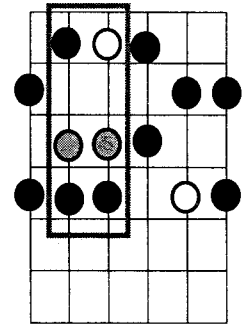
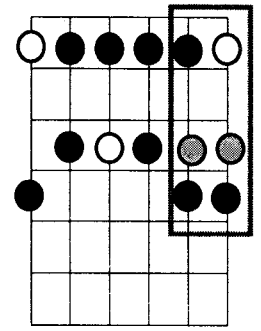
The Rectangle Secret

Uh oh... there’s more. If you look closely at all the fingerings given in this chapter, you’ll notice that all of the notes that define the mode are inside the Rectangle (see Chapter 3). Any pentatonic fingering has a Rectangle in it. What that means is that you can use that as a reference point to find the defining notes of any mode. Even though we only used one fingering to demonstrate the “Modes for Morons” concept, the idea works with all pentatonic fingerings (including the approach laid out in Chapter 3). The only real question at hand is which two strings the Rectangle appears on. Refer back to Chapter 3 with this new point of view. One of the things this book will point out is the links between pentatonics and modes. They are deep and meaningful.

The examples shown on this page show a minor pentatonic scale with the extra notes that give the essence of Dorian. Look at each fingering and find the rectangle shape. Inside each rectangle is where you find the notes that give the Dorian sound.

This same idea will work with any mode, provided you adjust the notes inside the Rectangle properly.

Example 5:



Here are exactly the same set of fingerings as on the previous page. But notice that the white circles are now in different places. Here, we are using the same pentatonic fingerings to get major pentatonics. The only difference between major and minor pentatonics (aside from the way they sound) is the note we use as a reference point.

Here are five major pentatonics with the notes between the Rectangle added to give the essence of Lydian. As you might expect, these notes can also be adjusted to get the essence of any major mode.

Conclusion

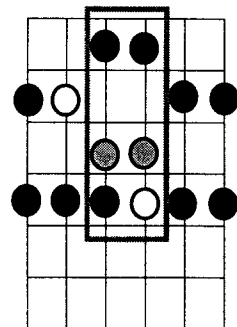
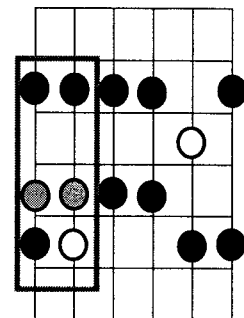
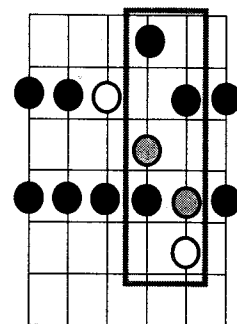
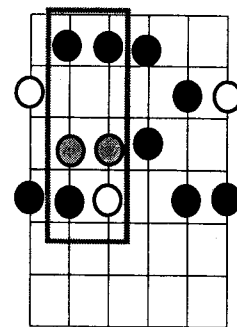
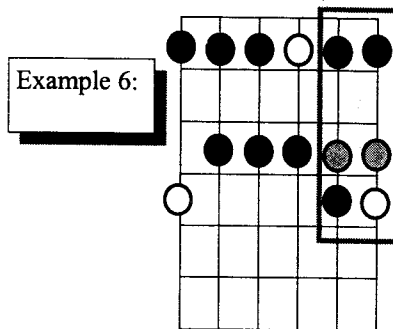
Pros: Easy to play, easy to remember, sounds really good.

Cons: Incomplete. Doesn't give all the possibilities. Staunch music theory snobs will point out you aren't playing a "correct" fingering.

My view: "correct" doesn't always mean "good." On the other side of the coin, knowledge doesn't have to inhibit creativity.

If you friends suddenly notice that your playing sounds more colorful and ask you how you did it, tell them you've been doing extensive research on modes. Tell them it took you years to finally come to this understanding.

...And we'll keep this our little secret.

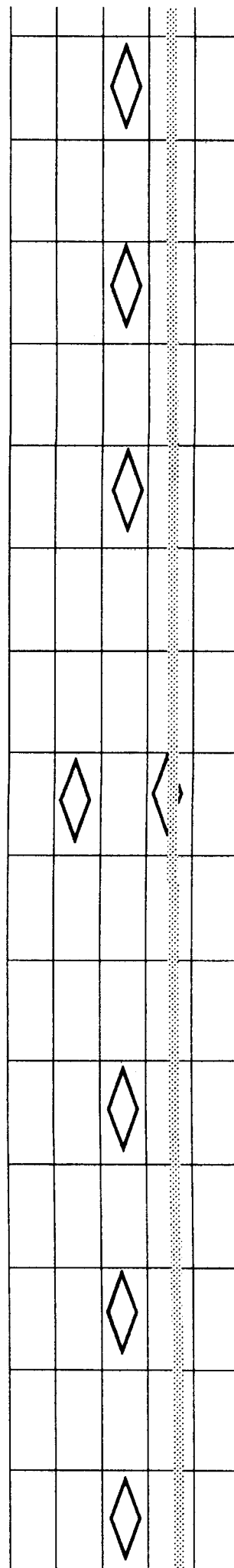


Chapter 5 Review

- Modes for Morons is a quick and easy way to find modes using pentatonics as a reference point.
- There are three modes that are based on minor pentatonic: Dorian, Aeolian and Phrygian.
- There are three modes based on major pentatonic: Lydian, Ionian and Mixolydian
- Each fingering gives you two modes (i.e. Dorian and Lydian, Aeolian and Ionian, Phrygian and Mixolydian). Of course, the exception is Locrian.
- Minor and major pentatonics share the same fingerings. What makes them major or minor is how you phrase them, and what chords you play over.
- This technique can be applied to any pentatonic fingering.
- Understanding the Rectangle Secret helps you learn these fingerings all over the fretboard
- Eventually, you will learn to be less dependant on visual references.

CHAPTER 6:

THE MAGIC NUMBER SEQUENCE— Fretboard Geometry applied to modes



The Magic Number Sequence

In this chapter, we'll explore Fretboard Geometry using modes. Frankly, modes and scales are not often the subject of passionate conversation. When I came up with this, it was as though I had been struck by lightning. My playing became far more coherent in a short time. I found it much easier for my fingers to find what my ears were hearing. I've taught this approach to hundreds of students over the years with positive results.

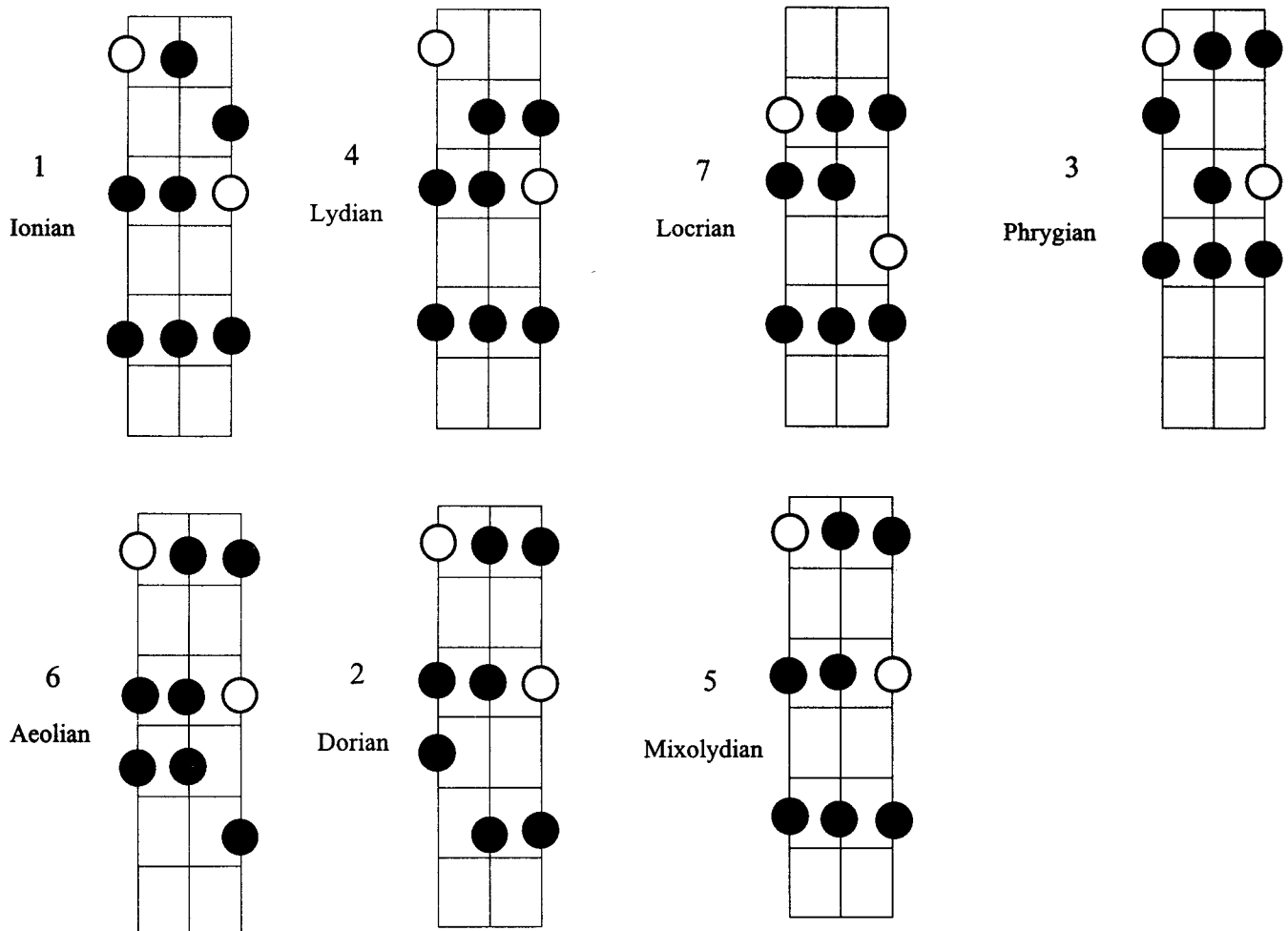
This idea all came about when, after learning all my mode and scale fingerings, I found it an overwhelmingly complicated matter to actually use them. Instead of making music, I was playing scales (yawn!). My fingers had been trained to gravitate toward the low E string to find the position and fingering I wanted.

This is an approach that gives you an easy-to-memorize set of fingerings, in the range of notes you choose. It also shows how they connect across the entire fretboard.

Each modal fingering is shown using three notes across three strings, giving them a range of one octave plus one note. I found that for a lot of musical phrases, I didn't need any more than that. If I did, I could simply link a few together to get what I wanted.

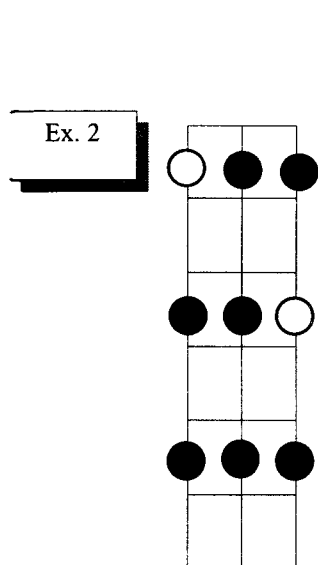
Here are the seven modal fingerings:

Example 1:

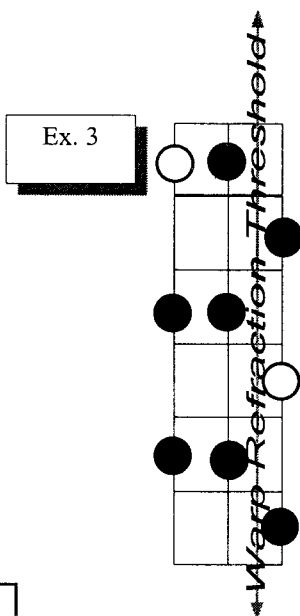


The Warp Refraction Principle - a friendly reminder

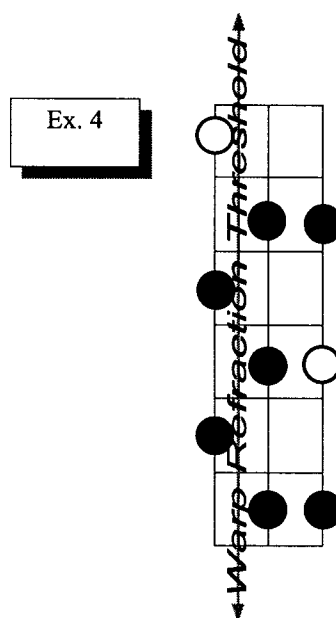
The Warp Refraction Principle states that the guitar's fretboard (assuming it is tuned to standard EADGBE tuning) is divided into two separate, but equal "Universes." These "Universes" are separated by an anomaly known as The Warp Refraction Threshold. Crossing from one "Universe" into the other causes the "optical illusion" that fingerings are offset by one fret. Examples 2, 3 and 4 show how this works with our modal fingerings using the 5 (mixolydian) scale as a model.



Mixolydian (Major from its 5th degree) scale as it would appear on string sets 654, and 543. Since Both Fingerings are in the same "Universe", the fingerings stay the same. The open circle shows the root.



Mixolydian scale as it would appear on string set 432. The top (highest sounding) string has crossed into the opposite "Universe". Notice the appearance of the fingering has changed, but the sound hasn't. Think of the change in fingering as an "Optical Illusion".



Mixolydian scale as it would appear on string set 321. Now, the top two strings are aligned the same as they were originally. Remember, both "Universes" have the same "Laws of Physics".

Linking Scales

Just as we did with pentatonic scales, we'll start linking some of these fingerings together to create larger ones. The idea is to understand this enough to use it as launchpad for your own ideas. Some of the examples may have a familiar ring if you've studied three-note-per-string scales. This goes a few steps further because you work to understand how the guitar is organized and the significance of the notes you play. In the end, you make your own choices.

In practicing this, you should study all the diagrams given, play all the examples written and read the text as many times as it takes to understand it. This is intended to keep you practicing for years. If this chapter raises as many questions as it answers, you're on your way!

Octave Linking

Example 5 gives you the 5(mixolydian) scale linked in octaves. This fingering spans five strings (65432).

Pay close attention to how you transition from the lower octave fingering to the higher one (or for that matter, vice versa). Linking these fingerings this way gives you four notes on the middle string (in other words, the string that is common to both fingerings), which opens up several possibilities. Try using the exact finger placement given here. If it doesn't work for you, come up with your own. When in unfamiliar ground, it is sometimes easier to go at it with a specific plan in mind. The astronauts didn't "wing it" when they landed on the moon. Granted, this is not rocket science.

[illegible]

_____ | _____ Lower Octave Fingering _____

14 12 14 12 10 14 12 10 14 12 10

* CD Track 32

Example 5:
D Mixolydian on strings 65432

The diagram illustrates a 12-string fretboard layout for the D Mixolydian mode on strings 65432. A vertical arrow labeled "Warp Retraction Threshold" indicates a boundary. The fretboard is divided into two main regions: "D Mixolydian - lower octave" (top) and "D Mixolydian - upper octave" (bottom). The lower octave region contains a box with notes on strings 6, 5, and 4. The upper octave region contains a box with notes on strings 6, 5, 4, and 3. Notes are represented by circles (white for natural, black for flat) and diamonds (white for natural, black for flat).

Example 6 gives you the 5(mixolydian) scale linked in octaves. This also spans five strings (54321).

The only reason these fingerings “appear” different on the fretboard is because of the “Warp Refraction Threshold”. Both sound exactly the same.

The principles presented here will work with any of the 7 fingerings given at the beginning of the chapter. I chose to demonstrate it using the mixolydian scale for two reasons: 1) I like the way it sounds 2) the visual pattern of the mixolydian scale is easy to remember. Try these ideas using the other fingerings as well.

Note that the degrees in these scales are played by the same finger in both octaves (i.e. the note F# is always played by the 4th finger). This helps develop ear/hand coordination. You begin to associate a certain sound with a physical move. Eventually, you stop thinking about fingerings and concentrate on the sound. But you have to walk before you can run.

Example 6

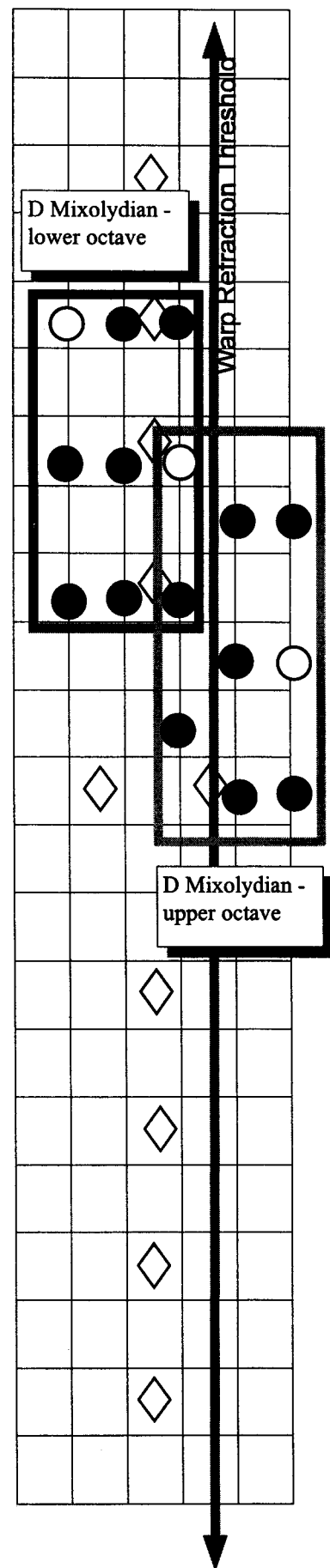
Lower Octave Fingering

Upper Octave Fingering

Lower Octave Fingering

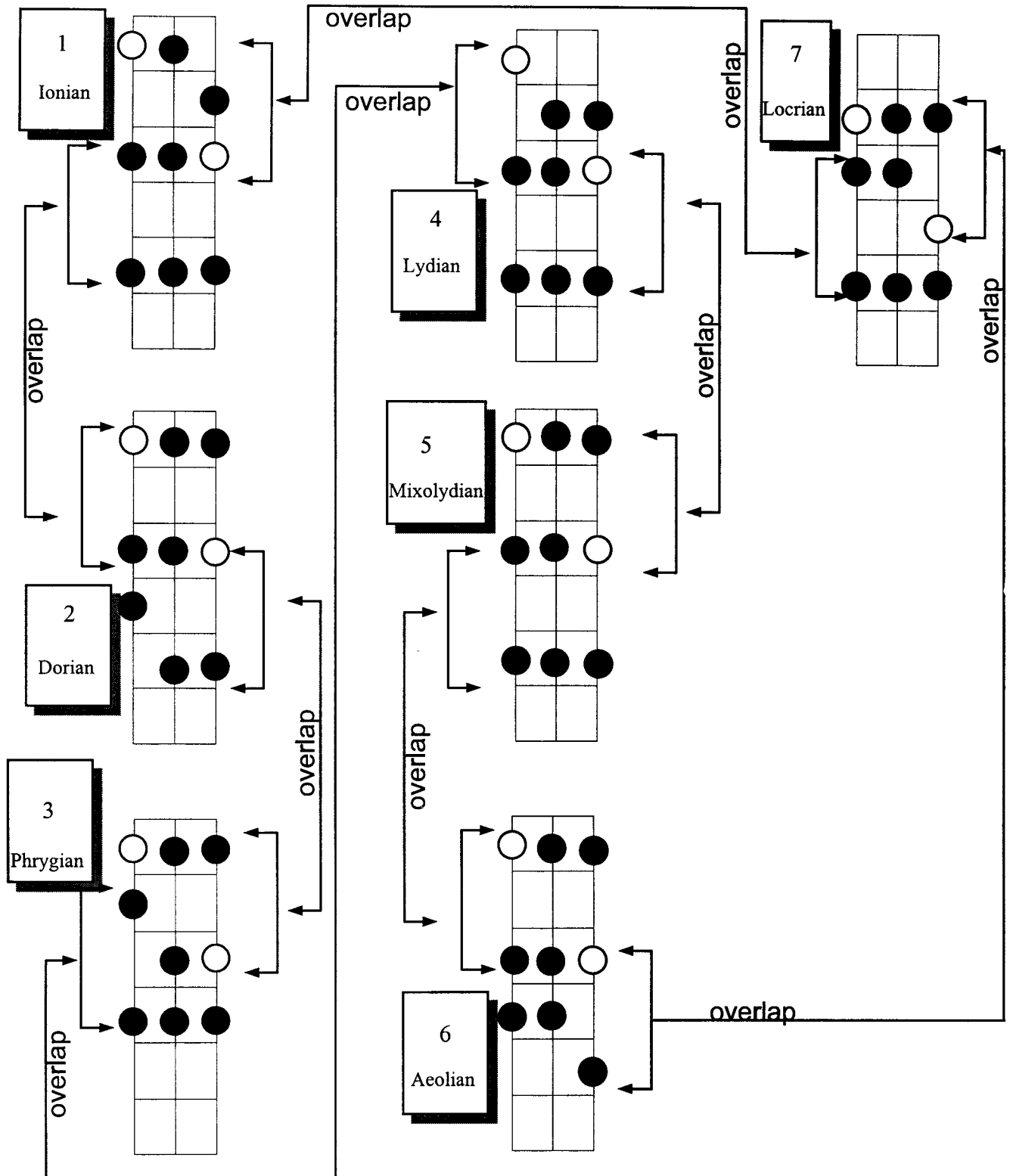
* CD Track 33

Example 6:
D Mixolydian on strings 54321



Up the Neck

By comparing 1 (ionian) to 2(dorian), you should notice that two out of three fingers overlap. 2(dorian) is a continuation in the same key of 1 (ionian) All the rest of the fingerings follow suit as well. Connecting them all moving up the neck gives you all the notes in one key on three strings. Look this page over for a while. Notice the whole thing is “circular” in nature; the end takes you right back to the beginning.



Ex. 7 gives all of the fingerings connected and overlapped in the key of G on strings 654. Here, we're not really playing "modes" as much as using "modal fingerings."

Please note that the musical example given could be very easily played as triplets. I chose to write it as 8th notes to make it a little more challenging. This way, each modal fingerings' location is less obvious. Pretty often (most of the time), the position change takes place in the middle of the measure. Also, note the technique used to change positions. In these cases, use a first finger slide (as shown in the notation).

Example 7

#1 - Ionian

#2 - Dorian

#3 - Phrygian

#4 - Lydian

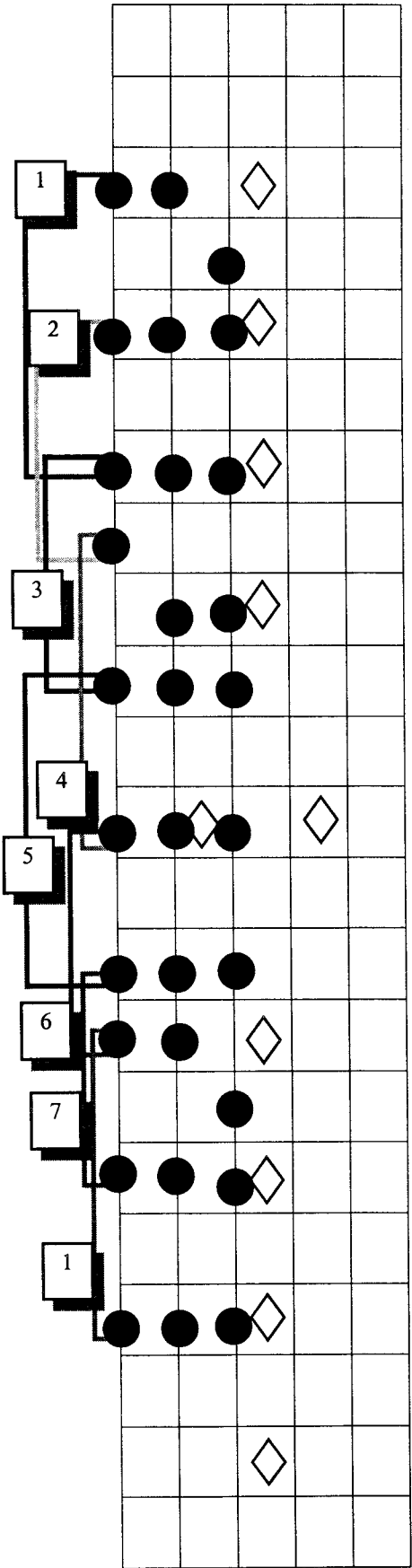
#5 Mixolydian

#6 Aeolian

#7 - Locrian

#1 - Ionian

Ex. 7: The seven modal fingerings linked on strings 654



Example 8 gives the same set of fingerings on string set 432. Bear in mind that the top string crosses “The Warp Refraction Threshold” and “appears” to be offset by one fret. Compare the two examples to see what we’re talking about. Example 8 is the same as Ex. 7, only it’s an octave higher.

You will note that in these diagrams, I did not refer to the modes by name, but rather their number. Remember, one way to get modes is a major scale starting from different notes.

Example 8

#1 - Ionian

#2 - Dorian

#3 - Phrygian

#4 - Lydian

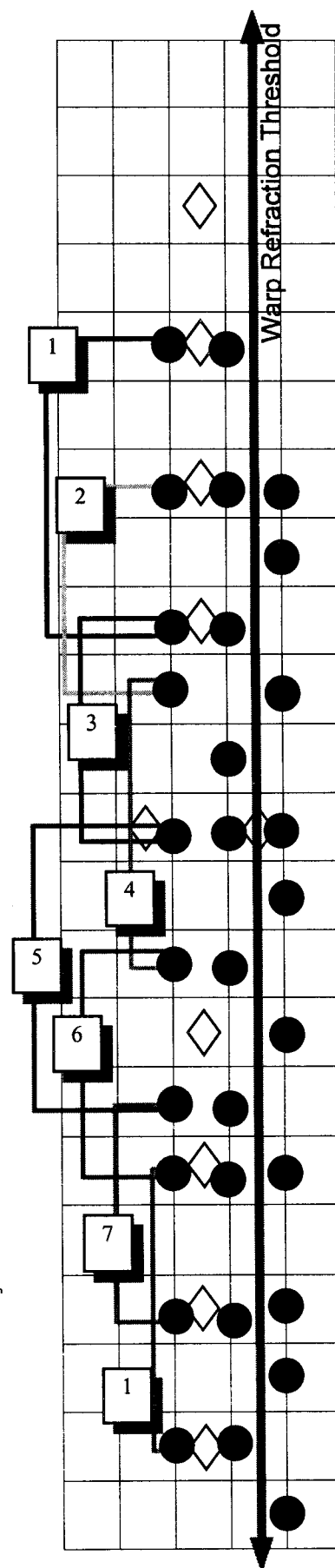
#5 - Mixolydian

#6 - Aolian

#7 - Locrian

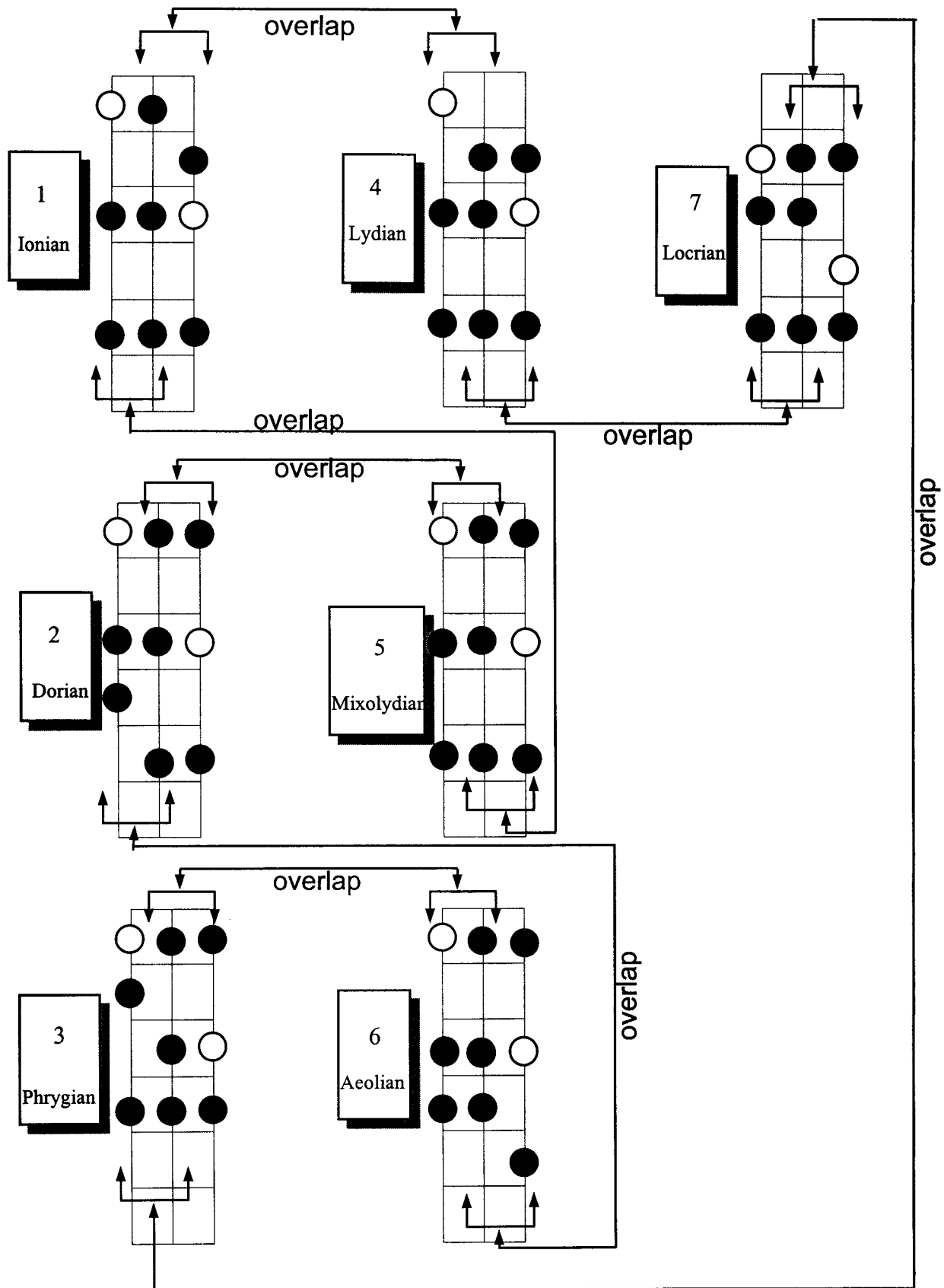
#1 - Ionian

Ex. 8: The seven modal fingerings linked on strings 432



* CD Track 35

Once, while I was teaching this stuff to a student, he shook his head and said, “Jon, you have too much time on your hands!” Maybe he’s right. In any event, here are the seven modal fingerings again. This diagram demonstrates how two out of three strings overlap. Just like a few pages ago, we experience the “circular” thing again. The last time we did it, we saw how the fingerings connect up the neck. Now, we do it up the strings. See any similarities between this approach and Fretboard Geometry?



Up the Strings

Now that we see how two out of three strings overlap in these patterns, let's put them on the fretboard and put them to use. Of course, if you've studied "three-note-per-string" scale fingerings, these will look quite familiar. Remember the chair we spoke about in the introduction. Let's "turn it on it's side" so to speak.

Here is the difference. If you think of it as four separate fingerings that are connected (or overlapped), you get these points of view:

- 1) The ability to "find your way in" to the scale fingering from any point.
- 2) A deeper understating of how patterns repeat on the guitar's fretboard.

Please take a few moments and play through the exercises given. Work to identify each modal fingering as you play though it.

Example 9

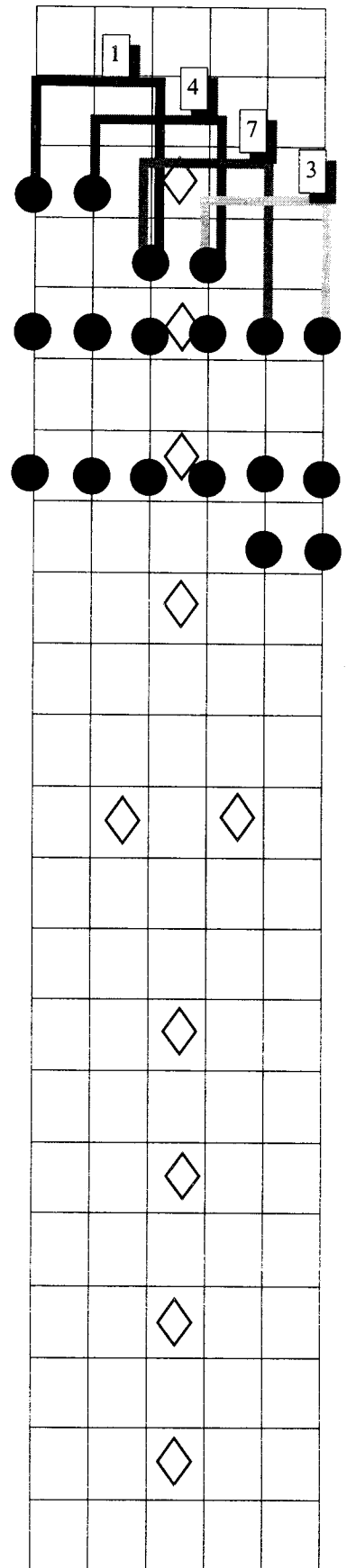
#1 - Ionian #4 - Lydian #7 - Locrian

#3 - Phrygian #7 - Locrian

#4 - Lydian #1 - Ionian

* CD Track 36

Example 9: linking modes across the neck



This example gives you the same key one position higher. Taking the Warp Refraction Threshold into account, you'll notice that the top two fingerings (1 on string set 432 and 4 on string set 321) overlap in the same way they did in the previous example.

This is one of those things that, once it "rings true", you almost feel stupid for not noticing it before. Once you get a handle on this, the way things repeat become easy and obvious. Don't feel stupid. The guitar is a difficult instrument to understand.

Example 10: linking modes in the same key, but one position up the neck

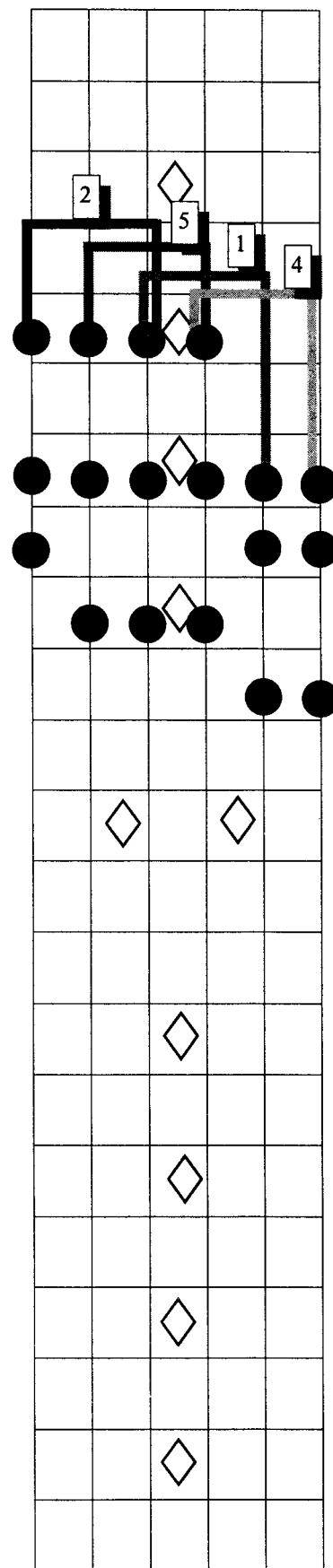
Example 10

#2 - Dorian #5 - Mixolydian #1 - Ionian

#4 - Lydian #1 - Ionian

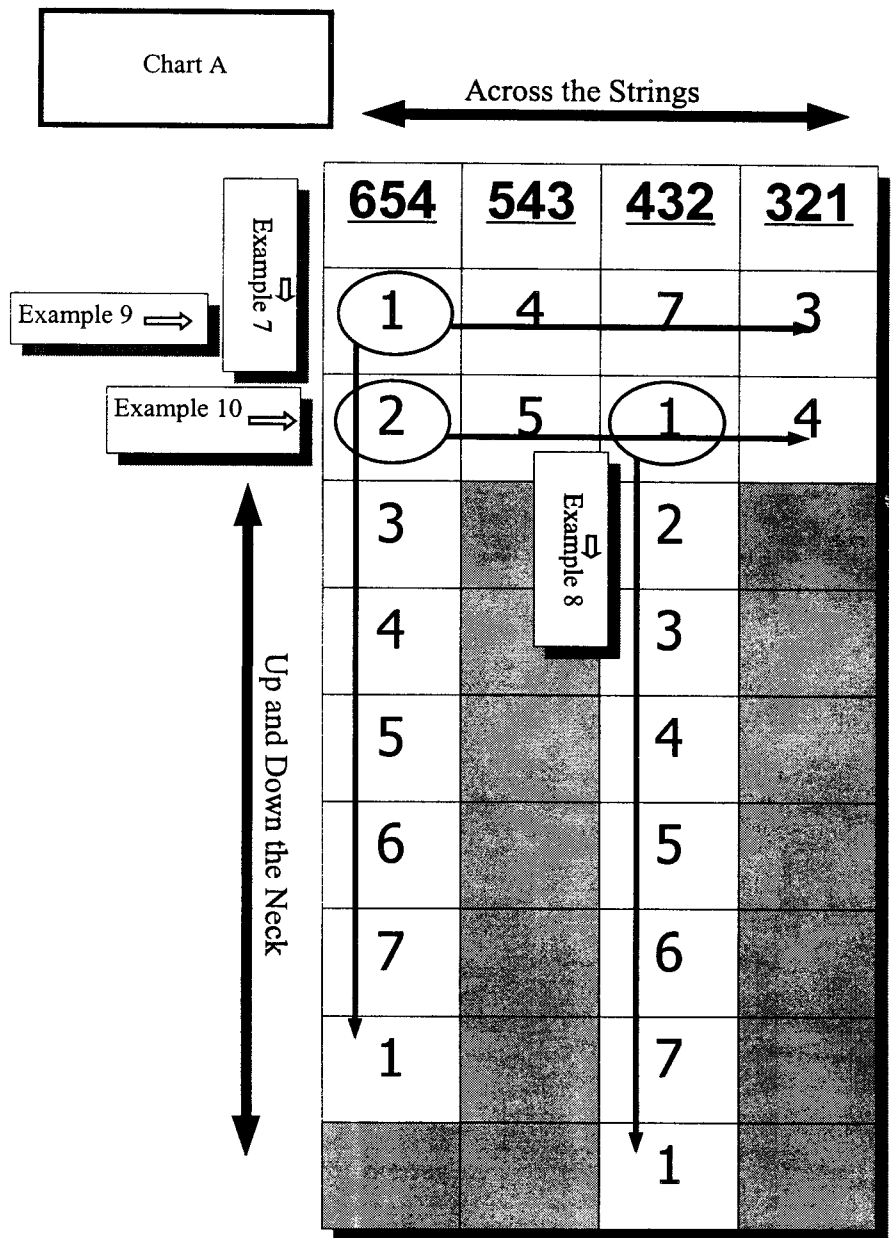
#5 - Mixolydian #2 - Dorian

* CD Track 37



The Story So Far

Here is a chart representing all of the examples discussed up to this point. The top row shows each group of strings while the rest of the numbers refer to a specific mode fingering. We used a similar chart in the series of articles on pentatonics. Notice that there is a lot of overlap going on. If you're starting to get fuzzy about what's going on, go back and retrace all the examples referred to in this chart. This is a "have a guitar in hand and thinking cap on your head" thing. Don't simply read this, get involved in it.



Here is the complete picture. It shows the simultaneous orders of how the modes connect going “up the neck”, and “up the strings”. The best part is that it doesn’t really suggest any particular starting point; only the relationships. Memorize this chart. It will tell you a lot.

Chart B

String Sets
⇒

	← Across the Strings →			
	<u>654</u>	<u>543</u>	<u>432</u>	<u>321</u>
	1	4	7	3
	2	5	1	4
	3	6	2	5
	4	7	3	6
	5	1	4	7
	6	2	5	1
	7	3	6	2
	1	4	7	3
	2	5	1	4

Up and Down the Neck

The Magic Number Sequence

The order in which these fingerings connect going up the neck should be pretty obvious. They simply go in numerical order (1, 2, 3, etc....until you reach 7 where it returns to 1). Going up the string sets is a little more confusing until you know The Magic Number Sequence. Here it is: 1473625 (an easy way to remember it is as an imaginary toll free modal telephone number: 147-3625).

On any given row, the numbers follow the sequence exactly. If one of the numbers is 5 and you haven’t reached the 321 string set, then the next one is 1. Think of this number sequence as circular in nature, like the numbers on a clock.

When I'm improvising, it's rare that I stay in one position. For that matter, I really don't think much about fingerings at all. But in order to do that, I need to be able to find the notes I want by reflex. I found that by practicing different ways to "navigate" the fretboard, getting around it became easier. These next few pages should help get you started down that path.

Just like we did in Chapter 3 (Fretboard Geometry), let's see what happens when we arrange these scales diagonally. Compare Chart C to Example 11.

Chart C

← Across the Strings →

String Sets

→

<u>654</u>	<u>543</u>	<u>432</u>	<u>321</u>
1	4	7	3
2	5	1	4
3	6	2	5
4	7	3	6
5	1	4	7
6	2	5	1
7	3	6	2
1	4	7	3
2	5	1	4

Example 11

→

↑ Up and Down the Neck ↓

Example 11

#1 - Ionian #5 - Mixolydian #2 - Dorian

3 5 7 3 5 7 4 5 | 7 5 7 9 5 7 9 5 | 7 9 7 9 10 7 9 11

#6 - Aeolian #2 - Dorian

8 10 12 9 11 12 10 12 | 13 10 12 14 12 10 13 12 | 10 12 11 9 12 10 8 11

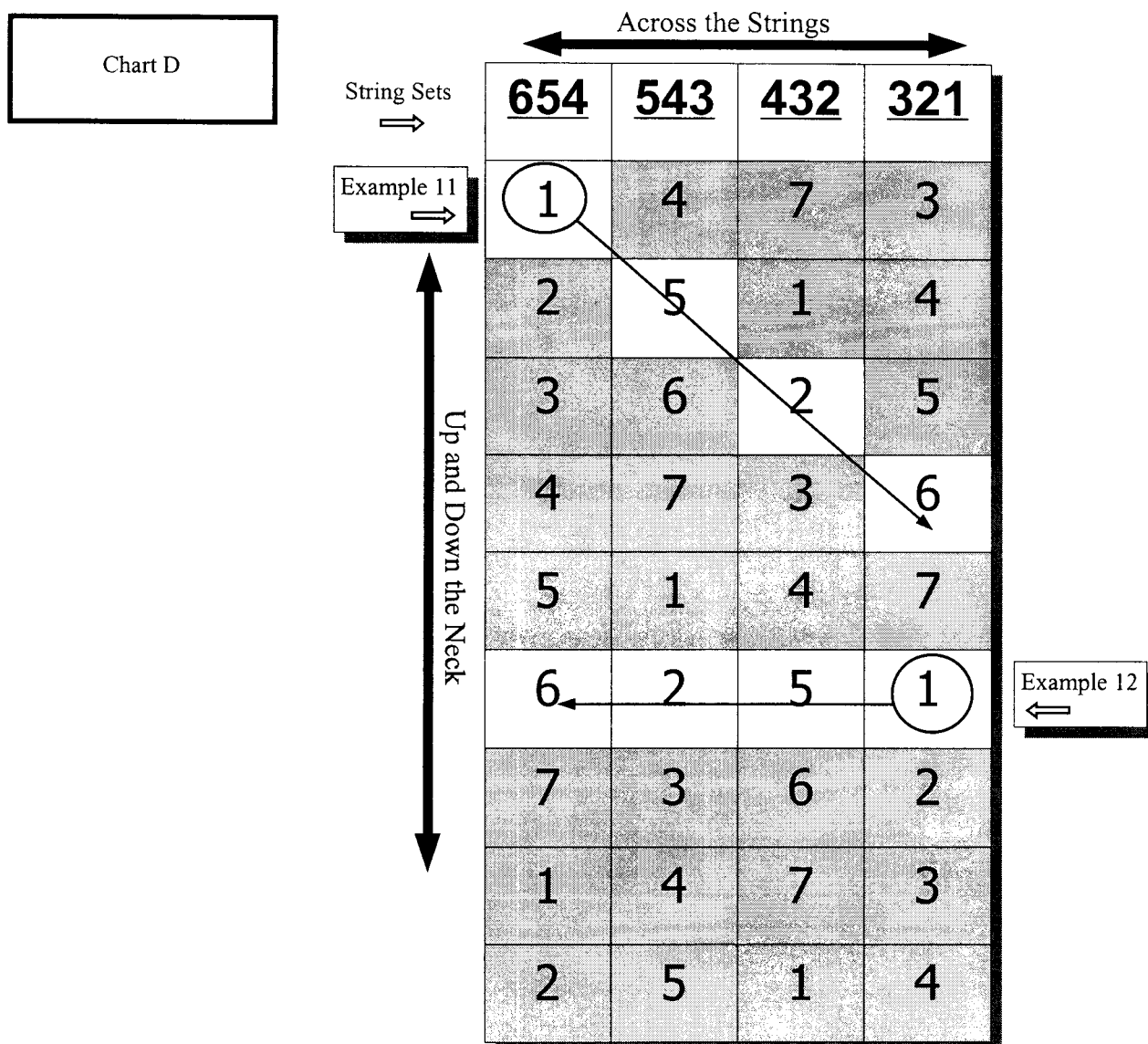
#5 - Mixolydian #1 Ionian

9 7 10 9 7 9 7 5 | 9 7 5 9 7 5 7 5 | 4 7 5 3 7 5 3

* CD Track 38

Study chart D carefully. Notice that moving diagonally up the fretboard gives you the same modal fingering order as moving “backwards” (or down the strings). The modes that are highlighted with arrows in the diagram show this clearly. But study the next “diagonal row.” Compare that to the rows moving backwards (right to left). For each diagonal row, there is a “backwards row” that matches it. The implication: moving diagonally across the fretboard the modal fingerings appear using the Magic Number Sequence (1473625) in reverse order (5263741). The reason this happens is that the Magic Number Sequence is really just a cycle of 4ths. Moving from string to string at the same fret (don’t forget to take the Warp Refraction Threshold in to account!) is to move up or down in 4ths.

Moving diagonally is to move up or down in 5ths (if you go by this chart). Moving up in 5ths, you get the same notes (but in different octaves) as you would by moving down in 4ths. If you’ve studied music theory already, that is an old idea. But few people (including me) ever think it applies itself so readily on a guitar. Play example 12, then go back and play example 11. Compare them to each other. I’m not big on guilt trips, but if you’re just reading this and not playing the examples, you may be missing the essence of all of this. It’s one thing to be able to understand an idea. To put it to use is something else entirely.



Example 12

#1 - Ionian #5 - Mixolydian #2 - Dorian

12 14 16 13 15 17 14 15 17 12 14 16 13 15 17 12 14 15 12 14 16

#6 - Aeolian #2 - Dorian

12 14 16 12 14 15 12 14 15 12 14 16 14 12 15 14 12 15 14 12 16 14 12 18

#5 - Mixolydian #1 Ionian

14 12 15 14 12 17 15 13 16 14 12 10 14 12 17 15 14 17 15 13 16 14 12

* CD Track 39

Play examples 13 and 14. Once again, compare them to each other and Chart E. See if you can invent your own ways of “navigating” the fretboard. You will find that with this knowledge, the guitar makes more sense than you might have ever anticipated.



Example 13

* CD Track 40

Example 13 musical notation and fretboard diagrams.

First System:

- #1 - Ionian:** 15 17 19 | 15 17 19 | 16 17
- #1 - Dorian:** 19 12 14 15 | 12 14 16 12
- #3 - Phrygian:** 14 16 | 9 10 12 | 9 11 12

Second System:

- #4 - Lydian:** 10 12 13 | 5 7 9 | 7 8
- #3 - Phrygian:** 10 7 8 10 8 7 | 10 8 | 7 9 7 5 | 13 12 10 12

Third System:

- #2 - Dorian:** 11 9 | 12 10 9 | 16 14 12
- #1 - Ionian:** 16 14 12 | 15 14 12 | 19 17 | 16 19 17 15 | 19 17 15

Example 14

Example 14 musical notation and fretboard diagrams.

First System:

- #1 - Ionian:** 5 7 9 | 5 7 9 | 7 8
- #2 - Dorian:** 10 7 9 10 | 7 9 11 8
- #3 - Phrygian:** 10 12 | 9 10 12 | 9 11 12

Second System:

- #4 - Lydian:** 10 12 13 | 10 12 14 | 11 12
- #3 - Phrygian:** 14 12 13 15 13 12 | 14 12 | 11 14 12 10 | 13 12 10 12

Third System:

- #2 - Dorian:** 11 9 | 12 10 8 | 11 9 7 | 10 9 7
- #1 - Ionian:** 10 8 | 7 9 7 5 | 9 7 5

* CD Track 41

Chapter Conclusion

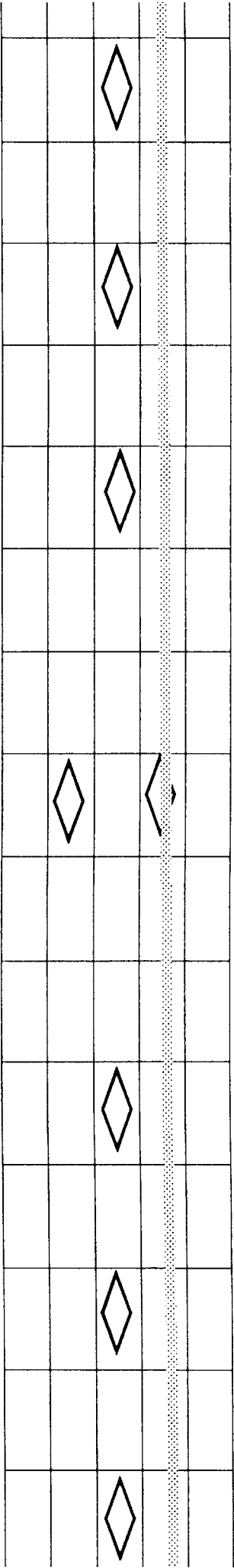
All you need to memorize are seven modal fingerings across three strings. Once you understand how they overlap each other, you can map them out all over the fretboard in any key. Moving up the neck you advance to the next number fingering (i.e. 1,2,3,4... etc.). Moving across the strings you apply the Magic Number Sequence: 147-3625. Memorize that number. It will have much meaning in later chapters.

Chapter 6 Review

- Just like the pentatonics in Chapter 3 - Fretboard Geometry, all the modal fingerings can be broken down in to smaller fingerings.
- Unlike the pentatonics, these are broken down in to sets of three notes on three strings.
- This gives us seven easy to remember fingerings. One for each mode of the major scale.
- Linking those together creates larger fingerings.
- They can be linked up the neck, across sets of strings, or diagonally; for that matter, they can be linked in infinite ways.
- Remembering the order they link moving up the neck is to simply order them sequentially (i.e. 1,2,3,4,5,6,7,1,2,3 etc.)
- Remembering the order they link moving across sets of strings is a simple question of memorizing the Magic Number Sequence: 147-3625
- Moving diagonally up the neck is to follow the Magic Number Sequence in reverse order.

CHAPTER 7:

CHOOSE YOUR NOTES— How the
Magic Number Sequence can apply
to note choice



Choose Your Notes

One aspect of defining your own style in improvisation is note choice. If you analyze any of your favorite players, you'll find that very often, their choice of what notes go over what chord is often fairly predictable and definable. This doesn't mean that their playing is predictable and definable, just the notes they gravitate toward. Just as Jeff Beck tends to gravitate toward the flatted fifth over a dominant seventh chord, Dicky Betts will often favor the 6th. I doubt either does this consciously. More likely, they probably just like the way it sounds. Further, emulating their note choice will not by itself make you sound like that person. If anything, it could help you break away from old habits. Sometimes, a fresh perspective is all it takes to gain musical ground.

This chapter will examine some possibilities about note choice. As with previous chapters, each idea is built on ideas introduced in previous ones.

Can We Talk?

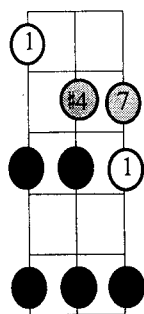
Imagine that the notes in a scale are like people in a conversation. Each note presents its own point of view. In most group discussions, one person will often emerge as the leader, navigating the direction the conversation takes. In a scale the "discussion leader" is usually the root of the chord. Most notes within a mode will usually support the "point of view" of the root. Others, while they are related by key, will play "devil's advocate" with the "discussion leader". These are the "characteristic notes." Understanding this helps bring out the music any scale offers; more so than merely knowing the fingering.

Same Starting Pitch

Play the 4 Lydian scale starting with the note C on the 5th String. Then, play the #1 ionian scale, also from the note C. Only one note, F# (in lydian) changes to F (in ionian). As you will see in the following examples the rest of the modes will also follow suit. When modes are organized as they are here, only one note changes from one to the next if all are started from the same pitch.

Here is the C Lydian Scale. It starts on the 4th degree of a G major scale. It is also a C major scale with a $\sharp 4$ th degree, or a C major pentatonic with $F\sharp$ and B added. Any of those definitions work. Play this scale and memorize the diagram.

Example 1



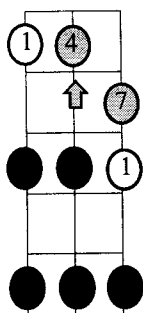
* CD Track 43

Example 1 - Mode 4, C Lydian. Comes from the Key of G where C is the 4th degree.



Now, play the C ionian scale below. Notice that only one note changes. The $F\sharp$ becomes F. If we use C Lydian as a reference, you could even say that ionian is Lydian with a $b4$. In each diagram, the arrow shows the note that changes from the previous example.

Example 2



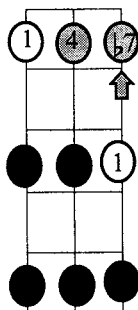
* CD Track 44

Example 2 - Mode 1, C Ionian. Comes from the key of C where C is the 1st degree.



C mixolydian is a C ionian scale with the note Bb . Bb is the seventh degree of the scale. We could say that this scale is an ionian (or major) scale with a flatted 7.

Example 3



* CD Track 45

Example 3 - Mode 5, C Mixolydian. Comes from the Key of F where C is the 5th degree.



Here is the 2 dorian scale. It is actually a mixolydian scale with a $\flat 7$. The characteristic notes are shown as 2 and 6.

Example 4 - Dorian

* CD Track 46

Example 4 - Mode 2, C Dorian. Comes from the key of B \flat where C is the 2nd degree.

Here is the 6 Aeolian scale. This is also commonly known as the natural minor scale. If you look at changed notes from scale to scale, you'll see that they follow a pattern. For example, if your current scale has the changed note on the lowest (in this case, 5th) string, then the next scale will have the changed note on the middle (or 4th, in this example) string. Take a look at the progression the arrows take to see it. This is a neat way to remember all the fingerings.

Example 5 - Aeolian

* CD Track 47

Example 5 - Mode 6, C Aeolian. Comes from the key of E \flat where C is the 6th degree.

This fingering for the 3 Phrygian scale has two notes that change; the 2nd degree in both octaves. Really, it's the same note in two octaves.

Example 6 - Phrygian

* CD Track 48

Example 6 - Mode 3, C Phrygian. Comes from the key of A \flat where C is the 3rd degree.

Here is the 7 locrian scale. It's characteristic note is the $\flat 5$. Since it is the only scale with this note, I call it "The Black Sheep." I'm pretty sure Jeff Beck is hip to this one. If you get to talk to him, please ask him for me.

Example 7 - Locrian

Example 7 - Mode 7, C Locrian. Comes from the key of Db where C is the 7th degree.

By flattening the root of a locrian scale (I can hear the musicologists now, “A flattened root? Blasphemous!”) you come all the way back to a 4 Lydian scale a half step lower than where we started. Remember, since the root appears twice in the fingering, both have to be lowered.

Example 8 - Lydian

Example 8 - Mode 4, Cb Lydian. Comes from the key of Gb where Cb is the 4th degree.

* CD Track 50

2 4 6 3 4 6 3 4 6 4 3 6 4 3 6 4 2

What's It All About, Alfie?

Let's take a look at a chart that summarizes all the information given.

Chart 1

Degree of scale this mode comes from	Mode	Note that changes from previous scale	Characteristic Notes
4	Lydian	-	#4
1	Ionian	b4	4,7
5	Mixolydian	b7	b7
2	Dorian	b3	6
6	Aeolian	b6	2,b6
3	Phrygian	b2	b2
7	Locrian	b5	b5
4	Lydian	b1	#4

Whoa, It's Magic!

In Chapter 6, we discussed "The Magic Number Sequence." It was used to explain how mode fingerings connect moving up the strings. Well, here it is again: 147-3625. If you look at the order in which the modes appear in this chart, you'll notice that it is the Magic Number Sequence in its reverse order. Also, if you look at the column marked "Note that changes from previous scale," you'll see that each changed note from one row to the next follows the sequence (147-3625) exactly. That's why the Lydian scale is given twice (in the beginning as a starting point, and at the end); to show this relationship.

What I particularly like about this system is that it makes it easier to find the notes you want relative to the root of the scale, in the range you choose. With this system finding the root is easy. It will always be on your first finger. Finding the notes you want will also be easy. Mapping the same key all over the fretboard can be as complete as you want it to be.

If you remove the “characteristic notes” from any of the fingerings given here, you get pentatonic scales. Go back to the fingering diagrams (ex. 1-7) and imagine them without the characteristic notes. Compare them to what you already know about pentatonics. It’s important to realize that much about the guitar is inter-related. For more information, refer to Chapter 8 - Decode Your Modes. Also, you may want to review Chapter 5 Modes for Morons.

Degree of scale this mode comes from	Mode	Note that changes from previous scale	Characteristic Notes of Mode	Relationship to Pentatonics
4	Lydian	-	#4	Remove #4 and 7 to get Major pentatonic
1	Ionian	b4	4,7	Remove 4 and 7 to get Major pentatonic
5	Mixolydian	b7	b7	Remove 4 and b7 to get Major pentatonic
2	Dorian	b3	6	Remove 2 and 6 to get Minor pentatonic
6	Aeolian	b6	2, b6	Remove 2 and b6 to get Minor pentatonic
3	Phrygian	b2	b2	Remove b2 and b6 to get Minor pentatonic
7	Locrian	b5	b5	Remove 1 and 4 to get Locrian pentatonic

The Kitchen Sink Chord Progression

Nothing illustrates an idea better than a musical example. My goal was to create a piece that uses all the modes (except locrian), and the companion fingerings. Melodically, the characteristic notes are an integral part of the melody. Pay close attention to the way these notes sound against the chord.

I tried to make it as musical as possible. Bear in mind that this is an exercise, not a real piece of music. Have a friend play the chords while you play the melody (or use a four track). Then switch parts.

The Kitchen Sink

By Jon Finn

* Characteristic note of mode: 7

* 6

D Ionian

D Dorian

Since the chord D is the strongest chord, we'll call it the home tone. We figure out the mode used by comparing "non-key" chords to the home tone.

D

F

G

The Chords F and G come from the key of C. D is the 2nd degree of C. Dorian is the mode built on the 2nd degree of a major scale.

simile

* 4

* b6

* 2

D Ionian

D Aeolian

D

Bb

C

The Chords Bb and C come from the key of F. D is the 6th degree of F. Aeolian is the mode built on the 6th degree of a major scale.

* CD Track 51

* CD Track 52 rhythm parts only

The Chords Eb and F come from the key of Bb. D is the 3rd degree of Bb. Phrygian is the mode built on the 3rd degree of a major scale.

The Chords D and E come from the key of A. D is the 4th degree of A. Lydian is the mode built on the 4th degree of a major scale.

The Chords D and C come from the key of G. D is the 5th degree of G. Mixolydian is the mode built on the 5th degree of a major scale.

Ready at the Teleport, Captain

Take these ideas and toss them around on your guitar. The most important part of this is what you do with it. The examples given are merely meant to get you on your way. It's up to you to take them to a different place. You'll develop your own style by formulating opinions about what you play. Remember, good musicians borrow ideas, but great ones steal.

Chapter 7 Review

- Using the three-note-per-string-on-three-strings system to compare the different modes starting from the same pitch, it becomes obvious that all the modes are closely related.
- When organizing them this way, only one note is different from one mode to the next.
- The note that changes from one mode to the next follows a pattern.
- The underlying cause of this action comes from the Magic Number Sequence.
- This system makes it easier to find the pitches within the scale that determine the scale's unique character.

CHAPTER 8:

DECODE THE MODES—

When do you use what mode?

		◇	
		◇	
		◇	
◇		◇	
		◇	
		◇	
		◇	

Decode the Modes

Modes can be described several ways: 1) a major scale starting on a different degree (or note) other than the first, 2) a major scale with notes changed, 3) a pentatonic scale with notes added. There are others, but we'll stick to these.

Example 1 shows all the modes in one key (C major) “dovetailed” together. In other words, D dorian, E phrygian, F lydian, etc., all come from C major. This shows how you get seven modes out of one scale. This is important information. If you know even one fingering for one scale, you know how to play all of them. Since no open strings are used, these can also be played in all keys by changing position. The trick is to find the right fret position for the key/mode you want.

The diagram illustrates the seven modes of the C major scale, dovetailed together on a single staff. The modes are: C Ionian, D Dorian, E Phrygian, F Lydian, G Mixolydian, A Aeolian, and B Locrian. Below the staff is a fretboard diagram showing the fingerings for each mode. The fretboard is divided into four measures, each corresponding to a mode. The fingerings are as follows:

Mode	Fret 1	Fret 2	Fret 3	Fret 4	Fret 5	Fret 6	Fret 7	Fret 8
C Ionian	3	5	7	3	5	7	4	5
D Dorian	5	7	4	5	7	5	6	8
E Phrygian	7	5	6	8	5	7	8	
F Lydian								

What makes a scale “modal” is not the fingering used, but the sound it produces. Playing something in D dorian means that you use the notes from C major, but D is the strongest note in the scale.

Let's look at this from a different angle. Example 2 shows a C Lydian scale. The fourth degree is sharpened (raised) compared to C major. Those of you who know key signatures will notice that this scale comes from G major (the key of G has one sharp, F#. C is the fourth degree of G, hence C Lydian). Play the first five notes of this example, twice each, to hear a rough approximation of Joe Satriani's "Flying in a Blue Dream" melody. If you experiment with this scale over a C major chord, the F# will probably have an unusual quality to it. Knowing that F# is the "characteristic note" of C Lydian is to understand the essence of modal improvisation.

Example 2: C Lydian

"Flying in a Blue Dream" - Joe Satriani

Example 3 shows C mixolydian. It is a C major scale with a flatted (lowered) 7th. It comes from F major. Try using this scale to play the melody from Jeff Beck's "Freeway Jam" to get the idea. Many people think of this scale as sort of a bluesy sounding major scale.

Example 3: C Mixolydian

Example 3: C Mixolydian scale notation. The top staff shows the scale in treble clef with a key signature of one flat (Bb). The bottom staff shows the scale in bass clef with a key signature of one flat (Bb).

"Freeway Jam" - Jeff Beck (Shown here in the Key of C where the original was in G)

First system of "Freeway Jam" notation. The top staff shows the melody with a key signature of one flat (Bb). The bottom staff shows the bass line with a key signature of one flat (Bb). Chord diagrams for C and Bb/C are shown above the first two measures.

Second system of "Freeway Jam" notation. The top staff shows the melody with a key signature of one flat (Bb). The bottom staff shows the bass line with a key signature of one flat (Bb). Chord diagrams for C and Bb/C are shown above the first two measures.

A dorian (Example 4) is an A minor scale with a raised 6th degree. It comes from the key of G. A priceless example is The Allman Brothers' "Whipping Post" (particularly the scale passage at the end). Actually, The Allman Brothers use A dorian quite a lot. Worth checking out.

Example 4: A Dorian

Example 4: A Dorian scale notation. The top staff shows the scale in treble clef, starting on A4 and ending on A5. The bottom staff shows the fretboard positions for the scale, with fingerings indicated by numbers 1-5.

"Whipping Post" - The Allman Brothers

"Whipping Post" - The Allman Brothers notation. The top staff shows the scale in treble clef, starting on A4 and ending on A5. The bottom staff shows the fretboard positions for the scale, with fingerings indicated by numbers 1-5. The notation includes a "Crescendo" marking and a "NC" (Natural Chord) marking.

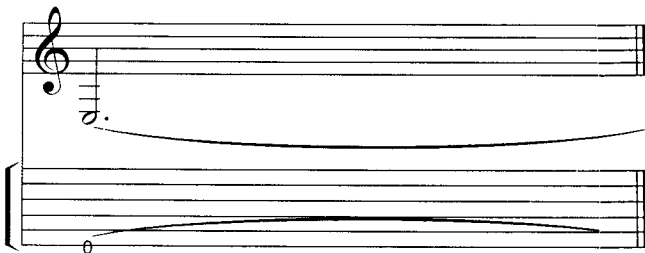
E phrygian (Example 5) is built from the 3rd degree of an C major scale. Also, it can be thought of as an E major scale with $\flat 2$, $\flat 3$, $\flat 6$ and $\flat 7$. Keep in mind that a note like the D natural in E phrygian is still considered $\flat 7$ because we compare it to E major, which has D \sharp . D natural is lower, therefore called flat. This is often a point of confusion.

Traditional Spanish music often uses phrygian as its base. Have a look.

Example 5: E Phrygian



"Malguena" - Traditional Spanish song



By now, you should be noticing that the fingerings given for all the modes are very similar.

If you play in a band and have improvised, you have probably played things like this before; even if you didn't realize it at the time. While all this might sound confusing, it's actually quite easy to do. It is just difficult to understand at first. Let's recap what we've looked at so far. Modes can be described these ways:

1) Any major scale from different degrees:

C major scale starting from this degree:	Is called this mode:
1	<i>C Ionian (also called C Major)</i>
2	<i>D Dorian</i>
3	<i>E Phrygian</i>
4	<i>F Lydian</i>
5	<i>G Mixolydian</i>
6	<i>A Aeolian (also called A minor)</i>
7	<i>B Locrian</i>

2) Any major scale with notes changed:

This Mode:	Comes from this key:	Starting on this degree:	These notes are different compared to the major scale from the same note
C Lydian	G Major	4	#4
C Ionian	C Major	1	-
C Mixolydian	F Major	5	b7
C Dorian	Bb Major	2	b3, b7
C Aeolian	Eb Major	6	b3, b6, b7
C Phrygian	Ab Major	3	b2, b3, b6, b7
C Locrian	Db Major	7	b2, b3, b5, b6, b7

3) Any major or minor pentatonic scale with notes added:

This Mode:	Uses this pentatonic scale:	With these notes added:
C Lydian	C Major	4, 7
C Ionian	C Major	4, 7
C Mixolydian	C Major	4, 7
A Dorian	A Minor	2, 6
A Aeolian	A Minor	b2, b6
A Phrygian	A Minor	b2, 6
B Locrian	C Major	1, b5

Now might be a good time to review Chapter 5 - Modes for Morons. Perhaps with the added perspective of the information presented here, it might mean more.

If we put all this information together, you'll notice certain tendencies. There are three major modes (scales with a natural 3rd), three minor modes (scales with a flatted 3rd), and locrian (I think of locrian as the "Black Sheep Mode"). Other than ionian (major) and aeolian (minor), each mode has at least one note that distinguishes it from others in its category. For example, to give a scale or passage a distinctly Dorian sound, all you have to do is focus in on the sixth degree in your phrases. If you want to pin down a particular sound, this is a great way to do it.

	Category	Mode	Degree of scale	Scale formula (compared to major)	Characteristic Notes
Major Modes	Major	Lydian	4	#4	#4
	Major	Ionian (Primary Major)	1	-	4, 7
	Major	Mixolydian	5	b7	b7
Minor Modes	Minor	Dorian	2	b3, b7	4, 6
	Minor	Aeolian (Primary Minor)	6	b3, b6, b7	2, b6
	Minor	Phrygian	3	b2, b3, b6, b7	b2
"Black Sheep"	Locrian	Locrian	7	b2, b3, b5, b6, b7	b5

By looking at the “characteristic notes” column, you should see that for the major modes, all the notes indicated are either 4 or 7. These are the notes that fall outside the major pentatonic. In the minor modes, the characteristic notes are either 2 or 6. Again these notes are not in the A minor pentatonic scale. Keeping this in mind helps you remember it all.

It is this reason that pentatonics work so well in so many situations. I've come to think of pentatonics as “Modal Vanilla Ice Cream”; very indistinct in character, but everybody likes it!

The idea is to know what notes make a mode sound the way it does. Please don't misinterpret this as a rulebook for the “best” notes. There is no such thing.

Certain scales and chord progressions seem to create certain moods. Originally, I planned to describe these moods. But sound affects different people in different ways. For this reason, you should decide for yourself what kind of mood a scale creates.

Now let's take a quick look at chord progressions. Again, there are no firm rules. This is only an introduction.

Unlike what it says about people in “The Constitution,” all notes are not created equal. In most songs, one note seems stronger than the rest. It is called the Tonal Center. When notes in a song come from a certain key, but another note is the strongest, it's considered modal. Certain kinds of chord progressions help this process. Take a look at the modal chord progressions given here. A closer look will show that each example has two major chords a whole step (two frets) apart from each other. These chords are built on the IV (4th degree) and V (5th degree) of the key they come from. These, along with the chord built on the tonal center (the strongest note) will often produce a strong harmonic backdrop that sounds modal. Many (but not all) rock tunes are based on this idea, regardless of whether the songwriter is familiar with this concept. Since this book is not really about harmony, I've decide to keep these examples simple and clear. You'll find that many of these will remind you of songs you know. That's the idea.

Each example has a summary of facts about itself. In each case the tonal center (the strongest note) is G. This is done for comparative purposes. Each example has two major chords (the IV and V) of the key they come from. Figuring out the relationship of the related key to the tonal center helps you determine what mode to use. Study the summaries carefully until you understand them. Then try to apply the same ideas to other songs you know. You'll find that in the real world, these concepts work very well, but some things can't be described quite so neatly.

The top staff (musical staff) gives you a suggested melodic guide. Play it verbatim at first, then use it as a guide to explore improvisational avenues. Eventually, you'll learn to come up with ideas of your own like these. I like using this way of thinking because it helps me "navigate" the music when I'm improvising. I can't resist a great metaphor: If music is an improvisational ocean, then this is your compass.

The middle staff gives the actual scale. It contains all the notes available within the key. Just as a painter doesn't use all of the colors on his/her palette all the time, a musician should learn to think of note choice as a means to inject "color." Know what's available. Choose wisely.

The third staff gives the chord progression. The indication of four slashes doesn't mean you play "chunk, chunk, chunk, chunk." It means, "This is how long you play this chord. Provide whatever rhythmic feel you think is appropriate." It is deliberately vague so you can put your own style in to it.

I made a conscious decision to leave out the tab and chord diagrams for this part. The intent is that you concentrate on the sound of the notes, rather than where you play them. Fingerings for these scales can be found in other chapters of this book. If there are some chords here you don't know, learn them.

Pay attention to the characteristic notes indicated. Try emphasizing them as you play. Also, work on avoiding them completely! Doing this shows different sides of the same coin. In the same spirit, you might also try using different chords. Try to create a modal chord progression without using this concept.

Once you get this together, the next step might be to analyze some of your favorite songs and/or solos (and the chords that go with them). Are there two major chords a whole step apart? You'll find that this happens a lot. If so, do they come from a different key than the tonal center? What degree is the tonal center compared to the related key?

As always, experiment with everything. One nice benefit of knowing theory is knowing what rules to break!

If you have trouble understanding this, keep in mind that the musical process is difficult to describe. It took me several years to reach a point where I felt I understood some of what modes are about. Even now, with music degrees and several decades of performing and recording experience behind me, some things about music still baffle me. All of it is utterly thrilling. The more I learn, the more I realize there is to know. At this point, I feel like I'm scratching the surface of what is possible.

Tonal Center: G
 Relative Key: D
 Mode: G Lydian
 Characteristic Note: C# (♯4th degree)

* CD Track 54

* CD Track 55 rhythm parts only

Suggested melodic guide

The G Lydian scale

G A/G G A/G

Typical Lydian chord progression

Tonal Center: G
 Relative Key: G
 Mode: G Ionian
 Characteristic Notes: C, F# (4th and 7th degrees)

* CD Track 56

* CD Track 57 rhythm parts only

Suggested melodic guide

The G Ionian (major) scale

G C D

Typical Ionian chord progression

Tonal Center: G
 Relative Key: C
 Mode: G Mixolydian
 Characteristic Note: F (♭7th degree)

* CD Track 58

* CD Track 59 rhythm parts only

Suggested melodic guide

The G Mixolydian scale

G F G F

Typical Mixolydian chord progression

Tonal Center: G
 Relative Key: F
 Mode: G Dorian
 Characteristic Note: E (6th degree)

* CD Track 60

* CD Track 61 rhythm parts only

Suggested melodic guide * 6

The G Dorian scale

Gm Bb C

Typical Dorian chord progression

Tonal Center: G
 Relative Key: Bb
 Mode: G Aeolian
 Characteristic Note: A, Eb (2nd and b6th degrees)

* CD Track 62

* CD Track 63 rhythm parts only

Suggested melodic guide * 2 * b6

The G Aeolian Scale

Gm Eb F

Typical Aeolian chord progression

Tonal Center: G
 Relative Key: Eb
 Mode: G Phrygian
 Characteristic Note: Ab (b2nd degree)

* CD Track 64

* CD Track 65 rhythm parts only

Suggested melodic guide * b2

The G Phrygian scale

Gm Ab Bb

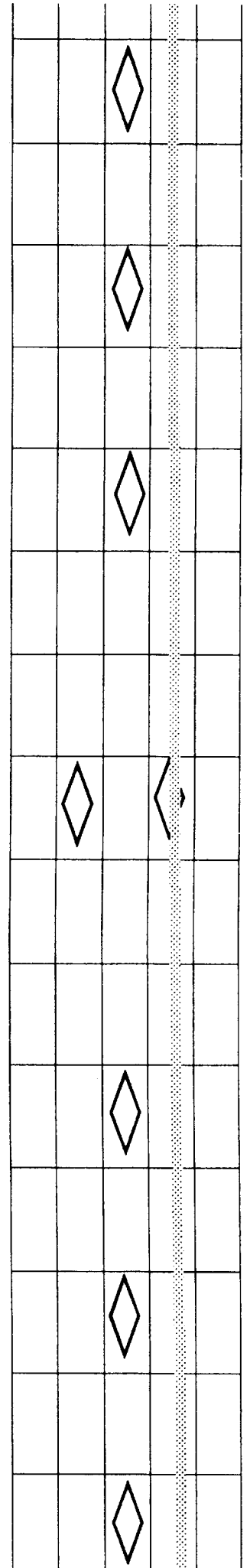
Typical Phrygian chord progression

Chapter 8 Review

- Modes can be described at least three ways: 1) a major scale starting on a different degree (or note) other than the first, 2) a major scale with notes changed, 3) a pentatonic scale with notes added. Understanding them from all three points of view will help you use them more effectively.
- Knowing the fingerings doesn't mean you automatically know how to use or understand how modes actually work.
- What makes a song or passage modal is the fact that the notes come from one key, but another note seems to be "strongest."
- Each mode has at least one "characteristic note." Using that note often will give a strong modal sound.
- Pentatonics are modes without their characteristic notes. That's why they work in so many situations. But it's that same quality that will sometimes render them bland.
- If there are two major chords that are a whole step (two frets) apart from each other, they are usually the IV and V of the key they come from. Figuring out the key (based on these two chords) compared to the strongest note will help you figure out what mode to use.
- With this new perspective given in this chapter, refer back to the "The Kitchen Sink" music example given at the end of Chapter 7.

CHAPTER 9:

ALTERNATE MODES— What they are and how to use them



Alternate Modes

There are lots of situations where major scales, modes or even pentatonics don't quite work. It's pretty common for songs to have mostly diatonic (in key) chords, then a chord gets stuck in that seems like it's out of the blue; but in kind of a cool way. Situations like that are great opportunities for melodic adventure provided you don't just blow past it.

In this chapter we will look at alternate modes, where they came from, and how to use them.

Real Melodic Minor

There are two primary scales that will get us the information we need: The Real Melodic Minor (sometimes called "Jazz Minor"), and the Harmonic Minor.

This chapter will apply many of the ideas already presented to these two scales. You will find that the results will cover almost any improvisational situation. Notice I said "almost."

Let's start with the basics and build. Here's an F real melodic minor scale (Ex. 1). It is an F major scale with a flatted 3rd.

Example 1:

1
Ionian b3



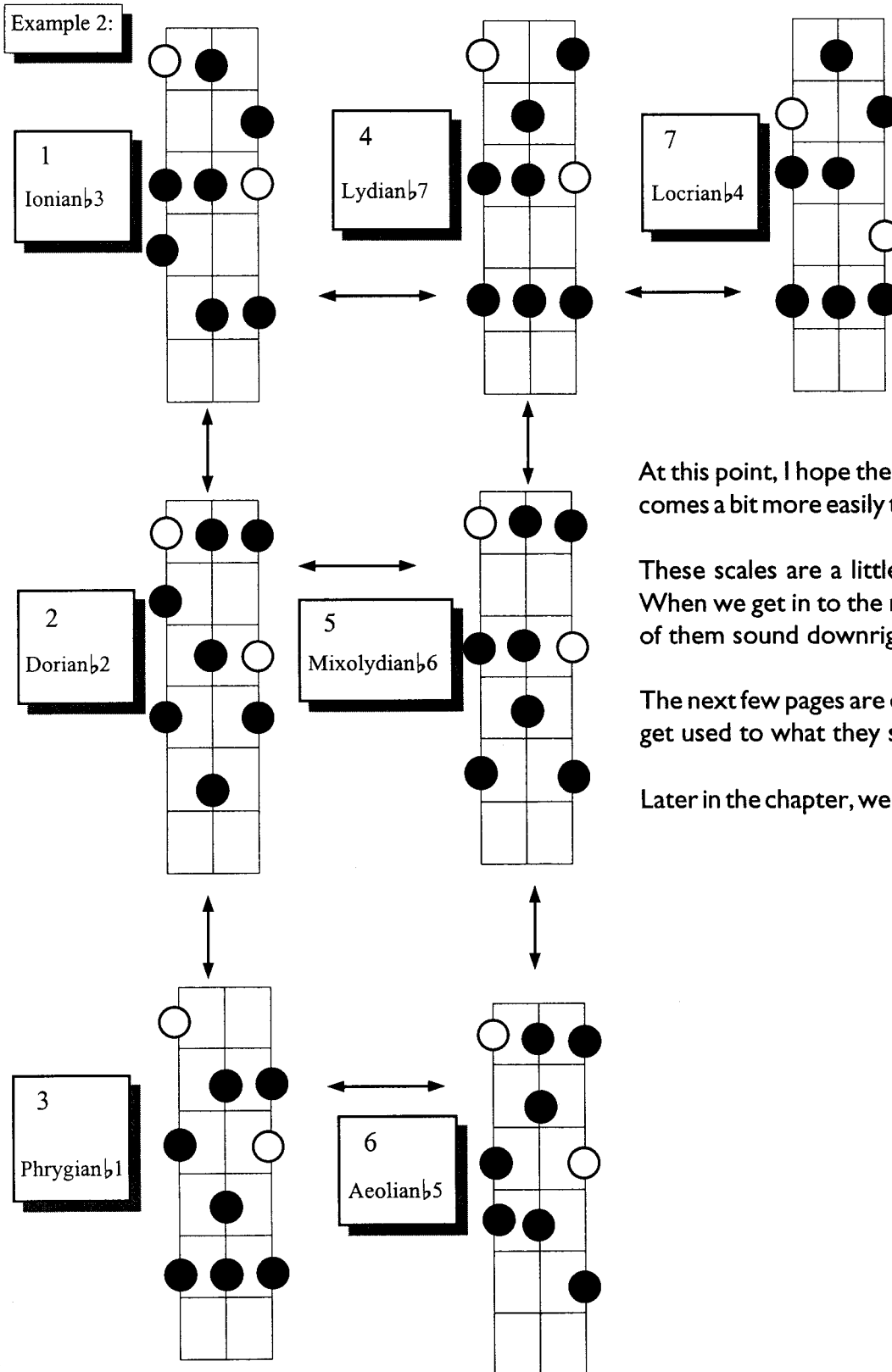
The F Real Melodic Minor Scale



* CD Track 67

The scale by itself may not seem like much, but when you master its modal possibilities, it becomes a very powerful tool. I deliberately presented a simple one-octave fingering so you could get the sound of it in your head easily.

In Chapter 6 - The Magic Number Sequence, we looked ways to link scales together. You will find that if you apply the same principles, they will work here too. Here are the seven modal fingerings for Real Melodic Minor. The arrows serve as a reminder of how the patterns will overlap in several directions.



At this point, I hope the idea of overlapping scales comes a bit more easily than it did in the beginning.

These scales are a little harder to grasp at first. When we get in to the modal side of these, some of them sound downright weird.

The next few pages are designed to help your ears get used to what they sound like.

Later in the chapter, we'll put these to musical use.

Here is a series of exercises that will help familiarize you with real melodic minor tonalities. Learn them as written, then experiment freely. Just as in “regular” modes, it is the “tonal center” not the actual key, that determines the mode. See if you can invent modal progressions that convince your ears that another chord besides F minor is the tonal center.

Example 3:

* CD Track 68

The diatonic triads of F Real Melodic Minor

Fmin Gmin A^baug B^b C Ddim Edim Fmin

Fingerings for the first system:

- Fmin: 1 (F), 3 (A), 5 (C)
- Gmin: 5 (G), 7 (B-flat), 8 (D)
- A^baug: 5 (A), 7 (C), 8 (E-flat)
- B^b: 5 (B-flat), 7 (D), 8 (F)
- C: 8 (C), 9 (E), 10 (G)
- Ddim: 9 (D), 10 (F), 12 (A)
- Edim: 11 (E), 12 (G), 14 (B-flat)
- Fmin: 13 (F), 14 (A), 15 (C)

Fmin Edim Ddim C B^b A^baug Gmin Fmin

Fingerings for the second system:

- Fmin: 13 (F), 14 (A), 15 (C)
- Edim: 11 (E), 12 (G), 14 (B-flat)
- Ddim: 9 (D), 10 (F), 12 (A)
- C: 8 (C), 9 (E), 10 (G)
- B^b: 5 (B-flat), 7 (D), 8 (F)
- A^baug: 5 (A), 7 (C), 8 (E-flat)
- Gmin: 5 (G), 7 (B-flat), 8 (D)
- Fmin: 13 (F), 14 (A), 15 (C)

* CD Track 69

The Diatonic 7th chords of F Real Melodic Minor

FminMaj7 Gmin7 A^bAug Maj7 B^b7 C7 Dm7, 5 Em7, 5 FminMaj7

Fingerings for the first system:

- FminMaj7: 1 (F), 2 (A), 3 (C), 4 (E-flat)
- Gmin7: 5 (G), 6 (B-flat), 7 (D), 8 (F)
- A^bAug Maj7: 5 (A), 6 (C), 7 (E-flat), 8 (G)
- B^b7: 5 (B-flat), 6 (D), 7 (F), 8 (A)
- C7: 8 (C), 9 (E), 10 (G), 11 (B-flat)
- Dm7, 5: 9 (D), 10 (F), 11 (A), 12 (C)
- Em7, 5: 11 (E), 12 (G), 13 (B-flat), 14 (D)
- FminMaj7: 13 (F), 14 (A), 15 (C), 16 (E-flat)

FminMaj7 Em7, 5 Dm7, 5 C7 B^b7 A^bAug Maj7 Gmin7 FminMaj7

Fingerings for the second system:

- FminMaj7: 13 (F), 14 (A), 15 (C), 16 (E-flat)
- Em7, 5: 11 (E), 12 (G), 13 (B-flat), 14 (D)
- Dm7, 5: 9 (D), 10 (F), 11 (A), 12 (C)
- C7: 8 (C), 9 (E), 10 (G), 11 (B-flat)
- B^b7: 5 (B-flat), 6 (D), 7 (F), 8 (A)
- A^bAug Maj7: 5 (A), 6 (C), 7 (E-flat), 8 (G)
- Gmin7: 5 (G), 6 (B-flat), 7 (D), 8 (F)
- FminMaj7: 13 (F), 14 (A), 15 (C), 16 (E-flat)

* CD Track 70

F Ionian b3

Fmin FminMaj7

Musical notation for F Ionian b3 scale and Fmin/FminMaj7 chords. The scale is written in treble clef with a key signature of one flat (Bb). The first staff shows the scale: F, G, Ab, A, Bb, B, C, D, E, F. The second staff shows the Fmin and FminMaj7 chords. The Fmin chord is F, Ab, C, and the FminMaj7 chord is F, Ab, C, Eb. The bass line is written in a simplified notation with numbers 1-7.

* CD Track 71

G Dorian b2

Gmin Gmin7

Musical notation for G Dorian b2 scale and Gmin/Gmin7 chords. The scale is written in treble clef with a key signature of one flat (Bb). The first staff shows the scale: G, Ab, Bb, C, D, E, F, G. The second staff shows the Gmin and Gmin7 chords. The Gmin chord is G, Bb, D, and the Gmin7 chord is G, Bb, D, F. The bass line is written in a simplified notation with numbers 1-7.

* CD Track 72

Ab Phrygian b1

Abaug AbAug Maj7

Musical notation for Ab Phrygian b1 scale and Abaug/AbAug Maj7 chords. The scale is written in treble clef with a key signature of two flats (Bb, Eb). The first staff shows the scale: Ab, Bb, C, Db, Eb, F, G, Ab. The second staff shows the Abaug and AbAug Maj7 chords. The Abaug chord is Ab, Bb, C, Db, and the AbAug Maj7 chord is Ab, Bb, C, Db, Eb, F, G. The bass line is written in a simplified notation with numbers 1-7.

* CD Track 73

Bb Lydian b7

Bb Bb7

Musical notation for Bb Lydian b7 scale and Bb/Bb7 chords. The scale is written in treble clef with a key signature of two flats (Bb, Eb). The first staff shows the scale: Bb, C, D, Eb, F, G, Ab, Bb. The second staff shows the Bb and Bb7 chords. The Bb chord is Bb, C, D, and the Bb7 chord is Bb, C, D, F. The bass line is written in a simplified notation with numbers 1-7.

* CD Track 74

C Mixolydian b6

C C7

Musical notation for C Mixolydian b6 scale and C/C7 chords. The scale is written in treble clef with a key signature of one flat (Bb). The first staff shows the scale: C, D, Eb, E, F, G, Ab, C. The second staff shows the C and C7 chords. The C chord is C, D, E, and the C7 chord is C, D, E, G. The bass line is written in a simplified notation with numbers 1-7.

D Aeolian b6

* CD Track 75

12 14 15 12 13 15 13 15 17 15 13 15 13 12 15 14 12 12 10 10 10

E Locrian b4

* CD Track 76

14 15 17 13 15 17 15 17 18 17 15 17 15 13 17 15 14 11 11 12 12 12 12

F Ionian b3

* CD Track 77

15 17 18 15 17 19 17 18 20 18 17 19 17 15 18 17 15 13 13 13 13 13

In keeping with our tradition, we'll look at this information from a few points of view. The chart below shows what happens when you take a modal approach to the real melodic minor scale. In traditional approaches, there is often confusion. For example, at first glance it's not obvious how one would get a lydian augmented scale, or why it's built on the third degree of a Real Melodic Minor scale. When I started thinking of it as phrygian $\flat 1$, it became clearer. It's called a lydian augmented scale because the term accurately describes the scale's sound.

I went through four years of music college (receiving a degree with honors) and never realized that the lydian augmented, altered, and lydian $\flat 7$ scales are just modes of the real melodic minor. Knowing that makes my life much easier.

Take a look at the chart. Notice that as we go to the next mode higher, the note that changes is lower in the scale. It's really the same note in each case, but its position in the scale gets one degree lower. There is also a list of chord types that work well with each scale.

I like charts.

Degree of Major scale this mode comes from	Mode	Note that Changes	Resultant Scale	Chord types this scale works well with
1	Ionian	$\flat 3$	Real ("jazz") Melodic Minor	Min, MinMaj7, Min6
2	Dorian	$\flat 2$	Dorian $\flat 2$ or Phrygian $\sharp 6$	Min, Min7, Min6
3	Phrygian	$\flat 1$	Lydian Augmented	Aug, Maj7 $\sharp 11$, Maj7 $\sharp 5$ (or AugMaj7)
4	Lydian	$\flat 7$	Lydian $\flat 7$	Maj, Dom7 $\flat 5$, Dom7 $\sharp 11$, Dom9th, Dom 13 or any combination
5	Mixolydian	$\flat 6$	Mixolydian $\flat 6$	Maj, Dom7 13 or Dom7 $\sharp 5$ (or Aug7th)
6	Aeolian	$\flat 5$	Aeolian $\flat 5$	min7 $\flat 5$
7	Lorian	$\flat 4$	Altered Scale or Super Locrian	Dom7 $\flat 9$, Dom7 $\sharp 9$, Dom7 $\flat 5$, Dom7 $\sharp 11$, Dom7 $\flat 13$, Dom7 $\sharp 5$ or any combination

This chart shows the same information as the previous chart. Only now, the modes are ordered in the same manner as they were in Chapter 8 - Decode the Modes.

That darn Magic Number Sequence just keeps coming up, doesn't it? Since the essence of the guitar's tuning is based on 4ths, learning the instrument while mindful of that dynamic makes things clearer.

Degree of Major scale this mode comes from	Mode	Note that Changes
4	Lydian	$\flat 7$
1	Ionian	$\flat 3$
5	Mixolydian	$\flat 6$
2	Dorian	$\flat 2$
6	Aeolian	$\flat 5$
3	Phrygian	$\flat 1$
7	Locrian	$\flat 4$

Magic Number Sequence ↑

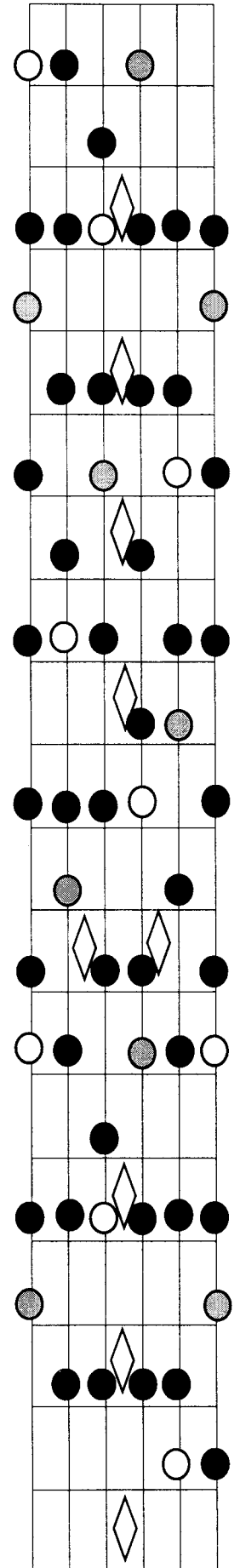
↓ Magic Number Sequence

Key:

- = Major scale root
- = Note that changes compared to the Major scale
- = All the other notes

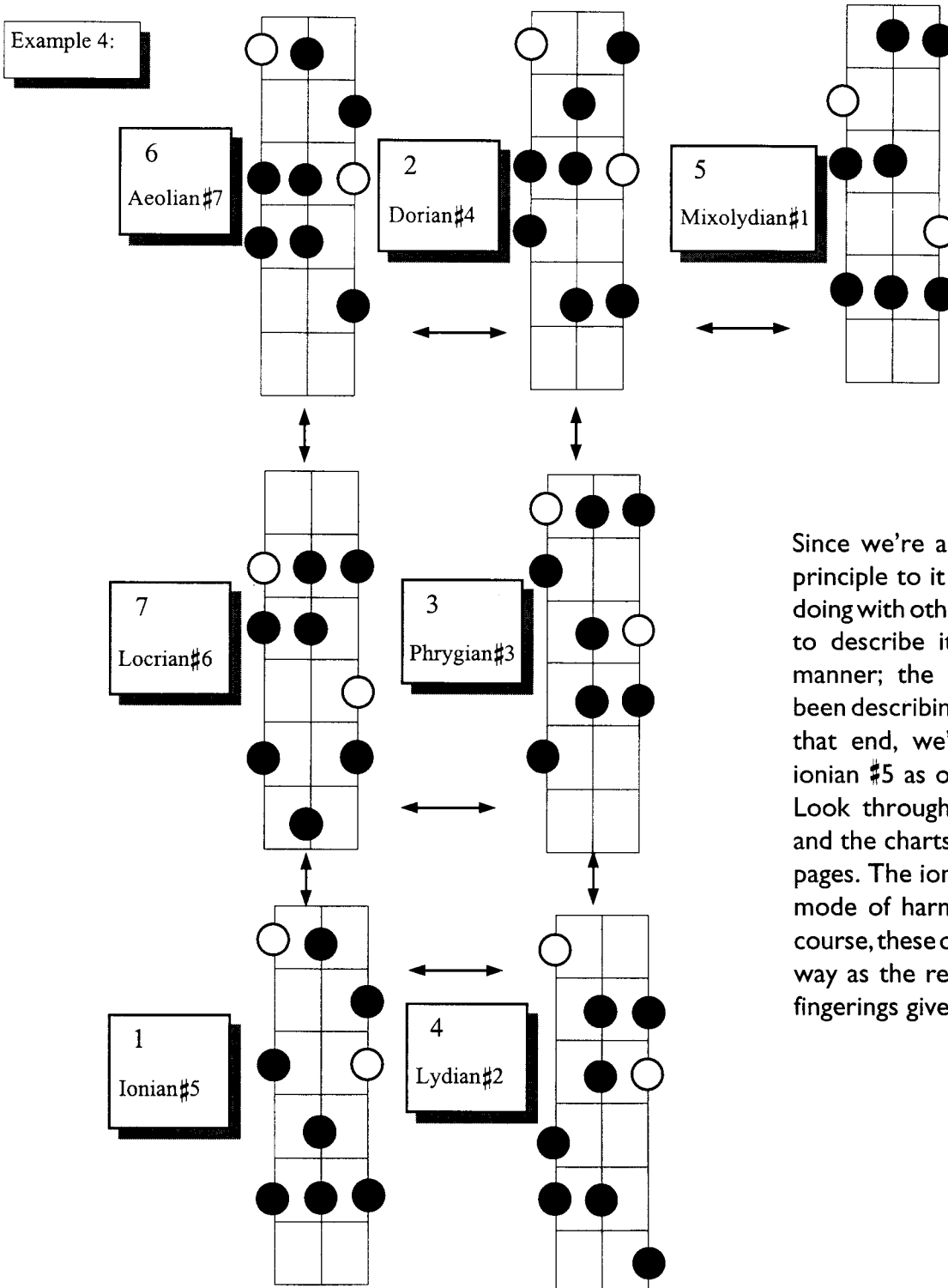
This diagram shows the F real melodic scale all over the neck. It is not really my intent to lead you to believe this must all be memorized. It is put here so you practice finding the smaller patterns within this larger one. In my mind, that's the key: the ability to pick out a small piece of information and have it at your disposal when you need it.

Use this page to practice seeing the patterns emerge differently each time you look at it.



Harmonic Minor

Here are the seven modal fingerings for harmonic minor. A harmonic minor scale is a natural minor scale with a raised 7th degree. This scale was first introduced several centuries ago in order to produce “more pleasing harmonies,” hence the name.



Since we’re applying the same principle to it as we have been doing with other scales, we need to describe it in a consistent manner; the same way we’ve been describing other scales. To that end, we’ll start by using ionian #5 as our starting point. Look through these fingerings and the charts on the following pages. The ionian #5 is simply a mode of harmonic minor. Of course, these overlap in the same way as the real melodic minor fingerings given earlier.

Just as we did with real melodic minor, it's time to explore some harmonic minor scale modes and chords.

Example 5:

* CD Track 78

The diatonic triads of F Harmonic Minor

Fm Gdim A \flat aug B \flat m C D \flat Edim Fm

Fm Edim D \flat C B \flat m A \flat aug Gdim Fm

The diatonic 7th chords of F Harmonic Minor

* CD Track 79

FminMaj7 Gm7,5 A \flat Aug Maj7 B \flat m7 C7 D \flat Maj7 Edim7 FminMaj7

FminMaj7 Edim7 D \flat Maj7 C7 B \flat m7 A \flat Aug Maj7 Gm7,5 FminMaj7

F Aeolian #7

* CD Track 80 Fm FminMaj7

Scale: F Aeolian #7 (F, G, A, Bb, C, D, Eb, F#)
 Chord: Fm (F, Ab, Cb)
 FminMaj7 (F, Ab, Cb, D, Eb, F#)

G Locrian #6

* CD Track 81 Gdim Gm7,5

Scale: G Locrian #6 (G, Ab, Bb, C, D, Eb, F, G)
 Chord: Gdim (G, Ab, Bb, C)
 Gm7,5 (G, Ab, Bb, C, D, Eb, F)

Ab Ionian #5

* CD Track 82 Abaug AbAug Maj7

Scale: Ab Ionian #5 (Ab, Bb, C, D, Eb, F, G, Ab)
 Chord: Abaug (Ab, Bb, C, D, Eb, F, G)
 AbAug Maj7 (Ab, Bb, C, D, Eb, F, G, Ab)

Bb Dorian #4

* CD Track 83 Bbm Bbm7

Scale: Bb Dorian #4 (Bb, C, D, Eb, F, G, A, Bb)
 Chord: Bbm (Bb, C, D, Eb, F, G)
 Bbm7 (Bb, C, D, Eb, F, G, Ab)

C Phrygian #3

* CD Track 84 C C7

Scale: C Phrygian #3 (C, Db, Eb, F, G, A, B, C)
 Chord: C (C, Eb, F, G, A, B)
 C7 (C, Eb, F, G, A, B, Db)

Db Lydian #2

* CD Track 85 Db DbMaj7

Scale: Db Lydian #2 (Db, Eb, F, G, A, B, C, Db)
 Chord: Db (Db, Eb, F, G, A, B)
 DbMaj7 (Db, Eb, F, G, A, B, C)

E Mixolydian #1 * CD Track 86 Edim Edim7

F Aeolian #7 * CD Track 87 Fm FminMaj7

Here is a chart that represents information about harmonic minor modes. Again, the note that changes with each subsequent scale is the same note in each case, but its position is different within the scale.

Enough said. Take a look.

Degree of Major scale this mode comes from	Mode	Note that Changes	Resultant Scale	Chord types this scale works well with
6	Aeolian	#7	Harmonic Minor	Min, MinMaj7
7	Lorian	#6	Harmonic Diminished	Dim7, Min7 \flat 5
1	Ionian	#5	Ionian #5	Aug, AugMaj7, Maj7#5
2	Dorian	#4	Dorian #4	Min, Min7, Min7 \flat 5, Min6
3	Phrygian	#3	Harmonic Major or "Spanish Phrygian"	Maj, Dom7, Dom7 \flat 9, Dom7 \flat 13, or any combination
4	Lydian	#2	Lydian #2	Maj, Maj7
5	Mixolydian	#1	Altered Diminished	Dim7

Some things in life are so insistent as to be almost frightening. I first came across this Magic Number Sequence thing when I was working on the three-notes-per-strings-across-sets-of-three-string thing. I thought, "Cool. That's a neat way to remember this little piece of information." But then when I realized how many more ways the Magic Number Sequence applies to the guitar (and for that matter, music in general...), I thought, "I've opened a pretty big can 'o worms, haven't I?"





I didn't ever think about how the MNS applies to altered modes until I began putting together this chapter.

I'm afraid now. I feel like Pandora's box has been opened.

Yes. It appears again here with respect to harmonic minor scales.

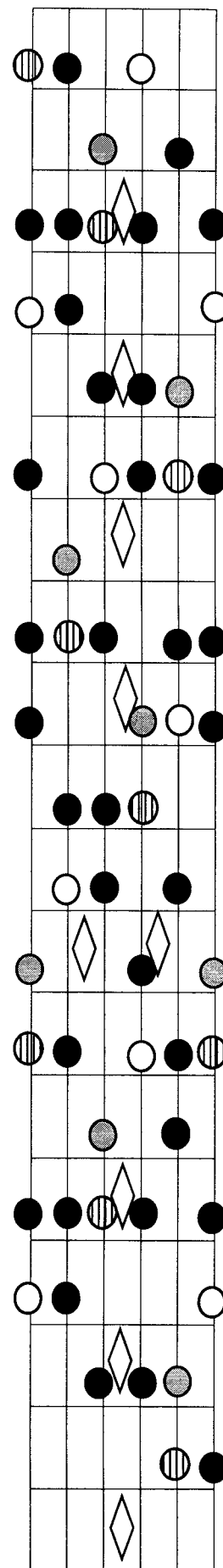
Magic Number Sequence ↑	Degree of Major scale this mode comes from	Mode	Note that Changes
	4	Lydian	#2
	1	Ionian	#4
	5	Mixolydian	#1
	2	Dorian	#4
	6	Aeolian	#7
	3	Phrygian	#3
Magic Number Sequence ↓	7	Locrian	#6

Key:

-  = Minor scale root
-  = Major scale root
-  = Note that changes compared to the Major scale
-  = All the other notes

This diagram shows F harmonic minor all over the fretboard. Again, the intent is for you to use it as a resource for memorizing the patterns and how they overlap.

Be less concerned with dots, and more concerned with fretboard navigation. Know the sound, but train your fingers to find the notes.

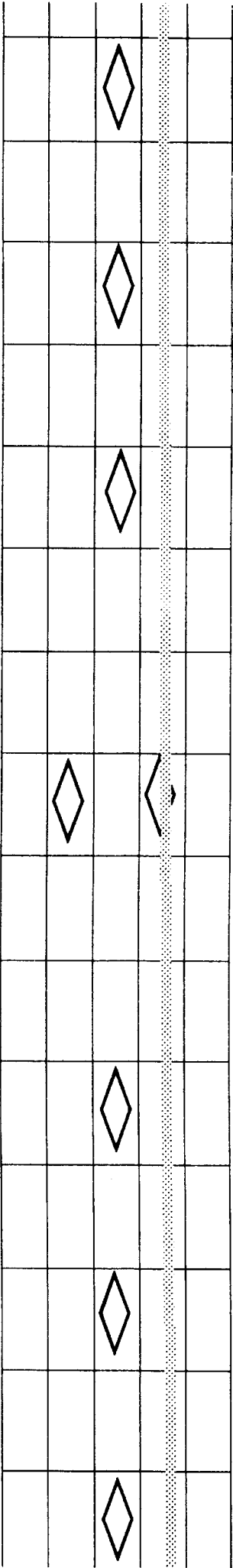


Chapter 9 Review

- Most scales used for modern improvisation can be derived from either major, real melodic minor, or harmonic minor scales.
- Learning the chords that come from real melodic minor and harmonic minor help you familiarize yourself with the different sounds possible.
- A great deal of new information can be gained from learning the modes of these two scales.
- The principle of the Magic Number Sequence applies to these scales in the same way it does with “regular” modes.

CHAPTER 10:

REVIEW/CONCLUSION—
How it all relates



I'm hoping that by now, you see a thread of logic that flows throughout the book. While writing it, I struggled with how much information to provide and what to leave out. Each chapter presented a challenge. But my goal overall was not to provide a reference manual that gives all the answers verbatim, but rather to convey a thought process.

It started when I bought one of those Mel Bay guitar books as a kid. At the end of the book, there was a page with about 50 chord fingerings on it. I thought to myself at the time, "Boy, if I could just learn all these chords, then I'll really be good!"

Years later, after I'd learned all those chords and then some, I still didn't feel as though I could play as well as I wanted to. That taught me two things:

- The better player you become, the more you understand what it takes to be "good."
- Information is useless unless it makes sense.

It's the "making sense" part I tried to convey in this book. My hope is that you take the points of view presented and expand upon them.

I learned to play guitar by ear while simultaneously studying music theory. I went for a long time understanding the theory ideas "on paper" but was not able to put them to use on guitar. The reason I had so much difficulty turned out to be deceptively simple. I was using visual references (shapes) to remember the things I wanted to use for improvisation. But when learning music theory, the shapes had no relevance or meaning. But still to this day, I think of an open D chord as a "triangle."

This book was an attempt at bringing theoretical meaning to shapes.

In the next few pages, we will look at some chord progressions with an eye toward improvisation strategies. Keep in mind, these are suggestions and not a "rulebook" per se. All of the suggested solutions are references to earlier chapters. They all work, and they all sound different. To fully understand the impact of the amount of information presented, play each example and experiment with all of the strategies. Also, think carefully about how the chord progressions actually work. This will help you apply these to other situations.

Eventually, the boundaries between each idea break down and it all becomes a single, larger concept.

Tonal Center: A

Related Keys: A (measures 1&2), G (measures 3&4)

Notice that there are two chords (C and D) a whole step (two frets) apart from each other. Refer back to Chapter 8, Decode Your Modes.

Each block in the chart represents a possible solution for the measure above the block. Try each row as is at first. Then mix and match. Trust me, this will keep you quite occupied for an extended length of time.

* CD Track 89 with solo

* CD Track 90 rhythm parts only

Example 1:

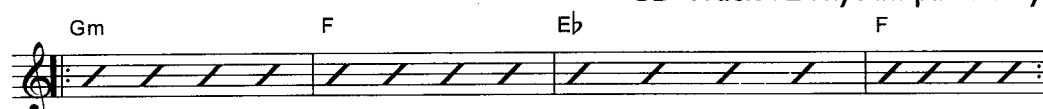


A Min Pent.	A Min Pent.	A Min Pent.	A Min Pent.
A Major Pent.	A Major Pent.	C Major Pent.	D Major Pent.
E Major Pent.	E Major Pent.	G Major Pent.	C Major Pent.
A Ionian	A Ionian	A Dorian	A Dorian
A Lydian	A Lydian	C Lydian	D Lydian
A Mixolydian	A Mixolydian	C Mixolydian	D Mixolydian
A Mix. Pent. #1	A Mix. Pent. #1	C Mix. Pent. #1	D Mix. Pent. #1
A Mix. Pent. #2 (E min6 Pent.)	A Mix. Pent. #2 (E min6 Pent.)	C Mix. Pent. #2 (G min6 Pent.)	D Mix. Pent. #2 (A min6 Pent.)
A Mix. Pent. #3 (C# min b5 Pent.)	A Mix. Pent. #3 (C# min b5 Pent.)	C Mix. Pent. #3 (E min b5 Pent.)	D Mix. Pent. #3 (F# min b5 Pent.)

Example 2:

* CD Track 91 with solo

* CD Track 92 rhythm parts only



G Min. Pent.	G Min. Pent.	G Min. Pent.	G Min. Pent.
D Min. Pent.	F Maj. Pent.	Eb Maj. Pent.	F Maj. Pent.
A Min. Pent.	C Maj. Pent.	Bb Maj. Pent.	C Maj. Pent.
G Aeolian	G Aeolian	G Aeolian	G Aeolian
G Dorian	F Mixolydian	Eb Mixolydian	F Mixolydian
G Phrygian	F Lydian	Eb Lydian	F Lydian
G Aeolian	F Mix. Pent. #1	Eb Mix. Pent. #1	F Mix. Pent. #1
G Dorian	F Mix. Pent. #2 (C min6 Pent.)	Eb Mix. Pent. #2 (Bb min6 Pent.)	F Mix. Pent. #2 (C min6 Pent.)
G Phrygian	F Mix. Pent. #3 (A min b5 Pent.)	Eb Mix. Pent. #3 (G min b5 Pent.)	F Mix. Pent. #3 (A min b5 Pent.)

Example 3:

* CD Track 93 with solo

* CD Track 94 rhythm parts only

Dm

A7



D Min. Pent.	D Min. Pent.	D Min. Pent.	D Min. Pent.
A Min. Pent.	A Min. Pent.	A Min. Pent.	A Min. Pent.
E Min. Pent.	E Min. Pent.	A Maj. Pent.	A Maj. Pent.
D Aeolian	D Aeolian	D Harm. Min. (A Phryg. #3)	D Harm. Min. (A Phryg. #3)
D Dorian	D Dorian	D Major (A Mixolydian)	D Major (A Mixolydian)
D Phrygian	D Phrygian	D Mix. Pent. #1	D Mix. Pent. #1
		D Mix. Pent. #2 (A min6 Pent.)	D Mix. Pent. #2 (A min6 Pent.)
		D Mix. Pent. #3 (F# min b5 Pent.)	D Mix. Pent. #3 (F# min b5 Pent.)
		D Alt. Dom. Pent.	D Alt. Dom. Pent.

Example 4:

* CD Track 95 with solo

* CD Track 96 rhythm parts only

C9

E \flat 9

G13

D7 \sharp 9



G Min. Pent.	G Min. Pent.	G Min. Pent.	G Min. Pent.
C Min Pent.	E \flat Min. Pent.	D Min Pent.	D Min. Pent.
C Mix. Pent. #1	E \flat Mix. Pent. #1	G Mix. Pent. #1	D Mix. Pent. #1
C Mix. Pent #2 (G Min6 Pent.)	E \flat Mix. Pent #2 (B \flat Min6 Pent.)	G Mix. Pent #2 (D Min6 Pent.)	D Mix. Pent #2 (A Min6 Pent.)
C Mix. Pent. #3 (E Min b5 Pent.)	E \flat Mix. Pent. #3 (G Min b5 Pent.)	G Mix. Pent. #3 (B Min b5 Pent.)	D Mix. Pent. #3 (F# Min b5 Pent.)
C Lyd. b7 Pent. (B Min b1 Pent.)	E \flat Lyd. b7 Pent. (D Min b1 Pent.)	G Lyd. b7 Pent. (F# Min b1 Pent.)	D Alt. Pent. (D Min #1, \flat 3 Pent)

Example 5:

* CD Track 97 with solo

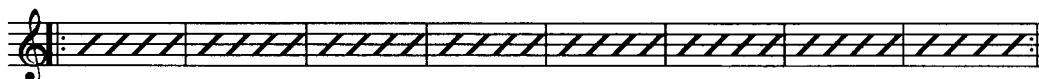
* CD Track 98 rhythm parts only

C7

Bbm7

C7

Fm



F Min. Pent.	F Min. Pent.	F Min. Pent.	F Min. Pent.
C Maj. Pent.	Bb Min. Pent.	C Maj Pent.	C Min. Pent.
C Min. Pent.	F Min. Pent.	C Min. Pent.	G Min Pent.
C Phrygian #3 (F Harm. Min.)	Bb Dorian	C Phrygian #3 (F Harm. Min.)	F Aeolian
C Super Locrian (Db Real Melodic Minor)	Bb Phrygian	C Super Locrian (Db Real Melodic Mi- nor)	F Dorian
C Mix. Pent. #1	Bb Aeolian	C Mix. Pent. #1	F Phrygian

Chapter 10 Review

- The farther up the hill you go, the more of the horizon you can see!